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American Pharmaceutical Association

Practical Pharmacy Edition

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Washington Views

Dr. Shields Warren, outstanding authority on radiology, says if nuclear weapons testing continues at present rate for 30 years, the genetic dose is still insignificant and only a fraction of the background radiation.

Although the demand for dental care is expected to increase more rapidly than the number of practicing dentists, widespread development of prepaid dental care plans will accelerate the demand for needed dental treatment, according to the U.S. Public Health Service.

The Federal Civil Defense Administration now assumes for planning purposes that the U.S.S.R. has the capacity to wage full-scale war and the power to attack any U.S. target using nuclear, conventional, biological warfare and chemical warfare weapons.

Psychopharmacology Service Center is the name assigned to the new unit at the National Institute of Mental Health, which it will assist in the development of scientifically sound research programs on tranquilizing drugs.

National Institutes of Health has established a new program for the translation and distribution of Soviet scientific information in the biological and medical sciences.

A new joint study which will report promptly unusual or adverse reactions to drugs by 11 leading hospitals is being sponsored by the Food and Drug Administration with the collaboration of the American Association of Medical Record Librarians, The American Society of Hospital Pharmacists, the American Medical Association, and the American Hospital Association.

According to a nation-wide Veterans Administration survey, volunteers working in VA tuberculosis hospitals incur no hazard of contracting TB.

Lieut. Col. Robert B. Lindberg, Army Institute of Research, Walter Reed Hospital, has developed a new painless hypodermic "jet gun" which shoots vaccine without a needle. Some 50,000 persons have been inoculated with vaccines, including Salk vaccine. The new hypodermic uses multiple-dose vials and is rated as high as 600 injections per hour.

There are over 2,000,000 cases of malaria annually in Mexico, which contains some two-thirds of all cases reported in the Western Hemisphere.

. . . *and last-minute news*

The average American family spends 4% to 5% of its annual income for medical care. Personal expenditures for hospital services have increased and the physician's share of the "medical care dollar" declined from 33¢ in 1929 to 27.2¢ in 1955, whereas the hospital's share rose from 14¢ to 27.8¢.

Fluoridated drinking water is now furnished to one-fourth of the people using public supplies.

The latest census report indicates a decline in chain drug store volume.

Since the end of World War II more than 1,200,000 firms with fewer than 100 employees have been established, small business employment has increased 45% from 11,600,000 in 1945 to nearly 17,000,000 today, and more than 93% of U.S. manufacturing firms employ fewer than 100 workers, while 98% of all businesses have less than 50 employees.

Although meprobamate (Miltown and Equanil) is said to be the most helpful and least harmful of all drugs used for the relief of nervous and emotional tension, its habit-forming tendencies for some persons demand that its use be carefully supervised.

Experts say 77% of deaths from whooping cough occur in children under one year old.

Harry J. Towers, formerly Manager of Trade Distribution for E. R. Squibb and Sons, became Assistant Executive Secretary and Manager of the National Association of Retail Druggists on November 1. He will supervise the operations and activities of the N.A.R.D. under the directon of Executive Secretary and General Manager John W. Dargavel.

Injection of Salk vaccine provides the only protection now available against poliomyelitis. Other vaccines, containing live attenuated virus, being developed by Dr. Albert B. Sabin and others are still experimental, although they offer considerable promise.

Human teeth may be stored and transplanted by means of a "tooth bank."

National Drug Trade Conference will hold its next annual meeting at Gramercy Park Hotel, New York City, on December 3 to consider uniform state laws, public relations, the 4th Pan-American Congress of Pharmacy and Biochemistry, poison control centers, medical care plans, and Fair Trade.

LETTERS

Hydrocortisone Availability

Sir:

I would like to complain about the difficulty I have in obtaining hydrocortisone in powdered form to include in lotions and ointment of needed composition on my prescription. I must ask the pharmacist to take the tablets and grind them up. This is unnecessarily costly, I believe.

On one occasion a detail man from The Upjohn Company left me some small tubes of a neomycin-prednisolone combination which contained benzocaine. I simply will not prescribe such a preparation, yet, because of the prohibitive cost of asking the pharmacist to grind up the tablets, I am put at a great disadvantage and in a supposedly advanced republic cannot obtain at a fair price what I know my patients should have. In effect, I have had to sign investigator forms for the Pfizer Company in order to have them send me the powdered hydrocortisone, which I can purchase from them for $4.75 a gram, and then have the local pharmacist make up for me jars and bottles of 1% hydrocortisone lotion and ointment, which I—mind you, I don't want to go into the prescription business, but I simply cannot find a pharmacist who will market this—which I have to dispense. Including the fee to the pharmacist who incorporates the micronized Pfizer powder, plus the bottles, base, etc., this comes to around $2.35 per ounce. An ounce of 1% hydrocortisone ointment retails in the Upjohn or Merck or other company tubes or plastic squeeze bottles for from $8 to $12 per ounce and often much higher. The ground-up tablets made up on prescription come to about $5 per ounce. Is this a sort of restraint of trade? It would seem to me that if hydrocortisone powder can be available, then it should be made available to the pharmacist for incorporation in any prescription which I wish, for I *need* this versatility. The constant high price for the manufactured preparations, which do not meet my needs because of incorporation of dangerous ingredients, must be artificially maintained, I feel.

Stamford, Conn. CHARLES SHEARD, M.D.

Overpopulation & Salaries

Sir:

As an answer to Paul Boyajian's letter [Sept., p. 558, "For Better Prescription Pricing"], I suggest that the young graduates migrate to California, New York or Connecticut where they can earn $125 per week or more. In Massachusetts there are too many pharmacists for the population. As a result there are too many sub-standard drug stores not able to properly reimburse the employees or owners for services. If enough of the pharmacists who are eligible would work in other states, the salaries of pharmacists in the high-volume stores would soon be as high as Paul Briggs said they are.

I myself would like to go to California to work as a pharmacist, having been registered since 1947, but in order for me to practice my profession I must spend 5 years in college to study what I already know. Since pharmacists' salaries are governed by supply and demand and Massachusetts has a greater supply than demand, the only solution would be reciprocity in all 48 states and the District of Columbia.

Westboro, Mass. SIDNEY E. NEVLER

Interest at Home and Abroad

Sir:

You may recall that THIS JOURNAL for June 1954 carried my article on radioisotope therapy—so neatly "dressed-up" by Dr. Goldstein. I received a number of inquiries about it, but what prompts this letter is the inquiry I have just received two years later from Portugal.

This lead me to review my correspondence and I was quite astounded to discover the almost unbelievable circulation our JOURNAL enjoys, one inquiry coming from Calcutta, India.

It then occurred to me that the JOURNAL's wide circulation should be of interest to the membership, so I am enclosing a list of addresses of some of the correspondents on that JOURNAL article.

St. John's University College of Pharmacy	Brooklyn, N.Y.
Brooklyn College of Pharmacy	Brooklyn, N.Y.
Dr. Wei-Chin Liu, Southern College of Pharmacy	Atlanta, Ga.
Paul B. Elder Company	Bryan, Ohio
Bernard Mehl	Bronx, N.Y
Fred Mircoff	Elizabeth, N.J.
Prof. Ramos Bandeira (Laboratory)	Coimbra, Portugal
Dr. D. Mucke, University of Leipzig	Leipzig, Germany
Physicist A. Bose, Chittaranjan Cancer Hospital	Calcutta, India

GEORGE B. HUTCHISON
Division of Administrative Services
Washington, D.C. *U.S. Public Health Service*

Sir:

We are much pleased to inform you that our President, Shokichi Uehara, has been elected again as a member of the Upper House for six years in the elections of July 8. On this occasion we would like to express our hearty thanks for your courtesy extended to him for years, and sincerely hope our friendly connections will be strengthened further to our mutual benefit.

MITSUO MAYEDA
Tokyo, Japan Taisho Pharmaceutical Co., Ltd.

Sharing an Idea

Sir:

An effective means of promoting and maintaining professional relations with physicians has been adopted by Our Pharmacy here in Los Angeles, and we would like to share this plan with our fellow pharmacists.

(Continued on page 704)

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Letters . . . . . (*from page 702*)

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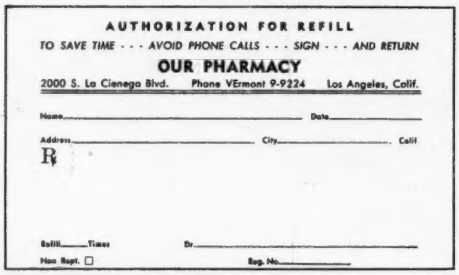

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Los Angeles, Calif. JULE FELDMAN

A Protest vs. O-T-C Rulings

SIR:

Following is a copy of a letter to George P. Larrick, Commissioner of Food & Drugs, in protest against the release of prescription legend drugs to over-the-counter sales. Copies of this letter have been sent to all California legislators so they may be familiar with our problems. Other states may consider a similar program in the interest of public health and safety.

"The Board of Pharmacy of California is somewhat concerned over recent actions by the Federal Food & Drug Administration in removing the prescription legend requirement from certain drugs. The Board has requested me to file a formal protest with your office in this regard.

"This office has, on occasion, filed protests when notified that hearings are to be conducted to release legend preparations for over-the-counter sale. I assume that many other enforcement agencies and associations file similar protests and some appear personally in opposition to such proposals. So far I have seen little evidence that these protests have received the consideration to which they are entitled.

"The ruling of your administration in allowing a manufacturer to apply for exemption from the prescription legend seems to be quite unfair. Even though agencies who are familiar with local conditions which would justify retaining the legend have an opportunity to file written protests, the advantage is definitely with the person filing the application for the exemption.

"Experience proves that whenever a new drug is introduced to the medical profession it is generally backed with considerable clinical data. However, the manufacturers continue to conduct clinical research to establish possible side effects and other conditions which might result from continued usage. It is quite apparent that it is not advisable to release any drug which has not been thoroughly tested for use by a consumer without supervision, at least until exhaustive tests have been conducted and the experience therefrom evaluated.

"Your department could no doubt justify your position in releasing certain drug products on the basis of clinical data presented by the party interested in the exemption. However, it appears that before any such action could be completely justified extensive field studies should also be considered. It can be safely estimated that at least ten years of actual clinical use should be conducted and the results carefully evaluated before new products should be released for public consumption.

"The experiences of this Board in restricting products which have been approved by FDA for over-the-counter sale could be used as suitable examples. In 1950 a rule was enacted to prohibit the sale of androgenic and estrogenic substances which contained more than 10,000 international units per ounce. In 1953 the Dangerous Drug Act was amended to provide proper control over hypnotic drugs when combined and compounded with nonhypnotic drugs. In 1955 the Board ruled that nose drop preparations containing amphetamine or desoxyephedrine could not be sold except on prescription, unless the preparation was rendered unfit for internal use.

"All of the products mentioned above are approved by FDA for over-the-counter sale. Can this be justified? At Board hearings more than sufficient evidence was presented to justify the Board's ruling. One of the most obvious comparisons is the exemption provided by FDA for nose drop preparations containing amphetamine or desoxyephedrine. A pharmacist may not dispense a single 5 mg. tablet without a prescription but, according to the exemption, even a grocery store could sell 325 mg. of amphetamine in a nose drop preparation which is nothing more than a palatable solution of this drug. Cases of continued misuse of these preparations compelled our Board to act in the interest of public health.

"Another good example is the recent release of doxylamine succinate, as published in the Federal Register on May 30, 1956. Section 130.1 (a) (14) (vii) shows labeling requirements. Subsection (*a*) provides as follows:

> 'Clear warning statements against administration of the drug to children under 6 years of age, except as directed by a physician, and against driving a car or operating machinery while using the drug, since it may cause drowsiness.'

'Subsection (*b*) provides as follows:

> '*If* the article is offered for temporary relief of the symptoms of colds, a statement that continued administration for such use should not exceed 3 days, except as directed by a physician.'

"On the basis of the labeling restrictions specified above, is there any question that this drug product is not going to be used solely for its hypnotic effect?

"Does the labeling not imply that the drug should be used only under the supervision of a physician?

"The statement: 'If the article is offered for temporary relief of the symptoms of colds...'would indicate that although this product is a recognized antihistamine, it may be better suited for its hypnotic effect.

"Any drug which produces sleep or 'drowsiness' should most certainly not be considered as safe for self-administration. If the drug is actually a hypnotic, it should be so classified. People who are drowsy from self-administration of doxylamine succinate are just as dangerous, when operating an automobile, as those whose drowsiness is due to the use of barbiturates or other hypnotic drugs. Goodman and Gilman describe this drug as: 'Producing a high incidence of sedation.'

"It does not appear as if the release of such a product, particularly when the cautions listed are deemed necessary, is in keeping with part of the release from your office dated May 30, 1956, in reference to 'New Drug Regulations.' I quote from page 5 of the release:

> 'The result would be to encourage a manufacturer to switch a drug from prescription to over-the-counter labeling without the submission of a new drug application whenever in his judgment the article was no longer a new drug under prescription labeling. *These proposed changes are regarded as contrary to the public health protection purposes of the act and contrary to the recommendation in the Citizens' Advisory Committee report which states that greater care should be exercised in converting prescription drugs to over-the-counter labeling.*'

"In the interest of public health and safety it is respectfully requested that more serious consideration be given to applications for exemption from the prescription legend requirement."

CALIFORNIA STATE BOARD OF PHARMACY
Floyd N. Heffron, *Executive Secretary*

Correction

Dr. George M. Hocking should have been designated *Professor of Pharmacognosy* instead of Dean at the Alabama Polytechnic Institute, Auburn, Ala., as printed in *Letters* in the October issue, page 622.

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on the ECONOMIC SIDE

by Charles C. Rabe

Pharmacists' Salaries

How much is a retail pharmacist worth? If John Q. Pharmacist thinks he is worth $125 per week, what volume of business must he produce for his employer—that is, in addition to carrying his load of duties that do not result in direct sales? Obviously, the answer can be arrived at only through a knowledge of the operating figures of the particular pharmacy involved.

If the pharmacist is engaged solely in the compounding and dispensing of prescriptions and the professional employees' salary expense is 10% of sales, he would have to produce $1,250 in prescription volume per week. If the average price of prescriptions is in the area of $2.50, he must fill about 80 prescriptions per day during a 6-day week in order to justify his salary. If the professional employees' salary is 12.5%, he must deliver $1,000 in prescription volume or about 70 prescriptions per day. Should the salary be as high as 15%, he would have to produce about $850 in prescription volume or about 60 prescriptions per day.

The big question is: "What is the 'average' professional employees' salary percent in the nation's pharmacies?" A specific answer cannot be given since national surveys invariably show all employees' wages lumped into one percentage. But even if it were possible to segregate pharmacists' salaries from those paid to non-professional personnel, it could still be argued, and logically so, that few pharmacies fall into a so-called average category. There is no yardstick that will fit all situations. ABC Pharmacy may show a better than average gross margin, yet its abnormally high cost of delivery service, rent, and other expenses may make it absolutely necessary that salaries be kept as close as possible to those imposed by the ageless economic law of supply and demand.

Also to be considered is the fact that few pharmacists devote full-time activity to prescription department duties. Evaluating the pharmacist's worth will depend, therefore, on establishing a production schedule in both prescription department and "front-end" duties. This is not to say that pharmacists should be placed under factory conditions. However, they should be fully aware of the basic economic law that all wages depend on production.

Census of Manufactures

During 1954, manufacturers in the pharmaceutical preparations industry shipped products valued at $1,643 million, an increase of 75% over 1947, according to preliminary results taken from the 1954 Census of Manufactures conducted by the Bureau of the Census. The cost of materials, fuel, electricity, and contract work represented $483,000,000, approximately 30% of the total value of shipments. Average employment in this industry, comprising 1,163 establishments, has increased 17% since 1947 when the last Census of Manufactures was taken.

Portions of the comprehensive breakdown of values (total of ethical and proprietary preparations) appear in abbreviated form in Table I. Veterinary preparations have been grouped into one entry. All other preparations listed are for human use.

TABLE I—VALUE OF MAJOR GROUPS OF PHARMACEUTICAL PREPARATIONS

	(In Millions)
Antibiotic preparations	$252.9
Vitamins	214.5
Laxatives, cathartics, antacids, stomach and ulcer products	123.4
Internal analgesics, excluding narcotics and hypnotics	120.0
Hormones	103.5
Veterinary preparations	85.8
Cough and cold products, excluding analgesics and antihistamines	64.6
Hypnotics and sedatives	57.8
Antiseptics, fungicides, germicides	48.5
External analgesics and counterirritants	43.5
Antihistamines	32.5
Hematinics, excluding B_{12}	32.5
Tonics and alteratives	24.4
Sulfonamides	23.7
Narcotics	18.1
Dietary depressants	16.1
Anesthetics, excluding external and gases	15.1
Dietary supplements, other than vitamins	2.2

The 1954 Census of Manufactures in the Biological Products Industry (human and veterinary) shows that manufacturers in this field shipped products valued at $61 million, an increase of 62% over 1947. The number of establishments increased from 84 to 93; the number of employees increased from approximately 3,000 to 4,000. Whereas the number of employees showed a gain of 33%, total payroll showed an 86% increase. Value added by manufacture amounted to nearly $37 million with cost of materials, fuel, electricity and contract work representing $24 million, or about 40% of the total value of shipments.

The value of biological products shipped by all producers, including establishments classified in the biological products industry and those establishments making such items as "secondary" products in other industries, amounted to nearly $80 million. The following table shows the breakdown of values according to product groupings. Source material should be consulted for a breakdown of values into human and veterinary classifications.

TABLE II—VALUE OF BIOLOGICAL PRODUCTS SHIPPED BY ALL PRODUCERS IN 1954

	(In Millions)
Viruses, vaccines, and tissue derivatives, except endocrine and multiglandular	$20.5
Normal serums, normal blood derivatives, whole blood, and naturally produced antibodies	18.7
Antibacterial serums and antiserums	11.5
Bacterial vaccines, antigens, and mixed vaccines	8.6
Miscellaneous biological products	5.4
Culture media and other bacteriological materials	3.8
Antitoxins and antitoxic serums	3.0
Bacterial toxins, modified toxins and venoms	2.6
Diagnostic agents, biological	2.3
Biological products, not specified by kind	1.7

News *and* Notes .

ASSOCIATIONS

American College of Apothecaries held its annual mid-year conference October 22–23 in Dallas, Tex. The final session was devoted to "Solving Our Intra-professional Problems" with *Edward Keating* as Moderator and with *Charles Pyle*, Merck Sharp & Dohme Vice President, *Harry A. Kimbriel*, N.W.D.A. Executive Vice President, and *William Meyers*, retail pharmacist, representing the respective occupations.

American Medical Association has authorized a first step in formulating a "model" uniform chemical labeling law. Its Committee on Toxicology is undertaking to make a draft to serve as a guide for writing legislation covering the possibly harmful chemicals not now regulated in the present quarter of a million different trade name substances on the market. The Committee plans to consult the AMERICAN PHARMACEUTICAL ASSOCIATION among other organizations interested in the public welfare.

American Pharmaceutical Association—Visitors to the American Institute of Pharmacy during October included *Dr. Wun Sung Whang*, Chief of the Korean Medical Supply Section, Bureau of Pharmaceutical Affairs; *Dr. Ivar Danielsson*, Reykjavik, Iceland; and *Dr. A. Van Nieuwenborgh*, pharmacist of Leopoldville, Belgian Congo.

Coastal Bend Pharmaceutical Association sponsored its second pharmacy management conference at Corpus Christi, Tex., October 17–18. To encourage attendance the morning program was repeated in the evening of the same day.

Health News Institute—*Chet Shaw*, Executive Director of pharmacy's new public relations organization, announces its formal incorporation and election of the following officers: Chairman of the Board of Trustees—*George F. Smith*, President of Johnson & Johnson; President—*Kenneth F. Valentine*, President of Pitman-Moore Company; Vice President—*J. Mark Hiebert*, President of Sterling Drug Co.; Treasurer—*S. Barksdale Penick*, President, S. B. Penick & Co.; Secretary—*John K. Worley* of Youngjohn, Worley and Brown and General Counsel for A.D.M.A. Mr. Shaw was named Executive Vice President.

National Council on Child Care, Inc.—This new independent and nonprofit organization consisting of 17 eminent pediatricians was organized August 22 with *Dr. Allan M. Butler*, Professor of Pediatrics of the Harvard Medical School and Chief of the Children's Medical Service of the Massachusetts General Hospital in Boston, serving as President. The purpose of the Council is to provide medical counsel on the utilization of mass media of communication.

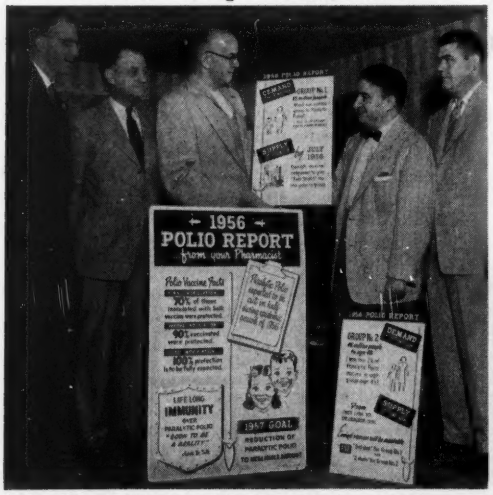
National Wholesale Druggists' Association held its 82nd annual convention November 10–15 at Hollywood-By-The-Sea in Florida.

New Hampshire Pharmaceutical Association announces the unanimous nomination of *Grace E. Hannan* for Secretary to succeed retiring Secretary *George A. Moulton*.

New Jersey Pharmaceutical Association—New statistics soon to be released show that New Jersey pharmacists filled almost 16,000,000 prescriptions last year in the state's 1,800 pharmacies.

Oklahoma Board of Pharmacy—*Deane D. Raley*, of the Raley Shaddock Pharmacy in Tulsa, has been appointed a member of the Board. Mr. Raley is a past President of the Oklahoma State Pharmaceutical Association.

The **Parenteral Drug Association** held its annual Meeting and Dinner in New York City October 31 –November 2. *Dr. Lloyd C. Miller*, Director of Pharmacopeial Revision of the U.S.P. was guest of honor at the dinner.



▲*New Jersey Pharmaceutical Association and Monmouth-Ocean Pharmaceutical Society present polio posters to the Mayor of Asbury Park. Left to right: Jack Meisler, Society Pres.; Hans Letsche, V.P.; Mayor Roland J. Hines; Benjamin Schultz, N.J.Ph.A. President-elect; James Thompson, Society President-elect.*

▼*At the National Formulary exhibit for the recent American Dental Association Convention, E. A. Sless, Atlantic City, N.J., pharmacist explains the use of dental formularies to Dr. E. L. Martin, Lancaster, Pa., dentist, who registered for a complimentary copy provided by the Pa. Pharmaceutical Association. A.Ph.A.'s Charles Rabe is at extreme left; Dr. John L. Voigt, Extension Service Director, Rutgers University College of Pharmacy, is shown on the extreme right.*

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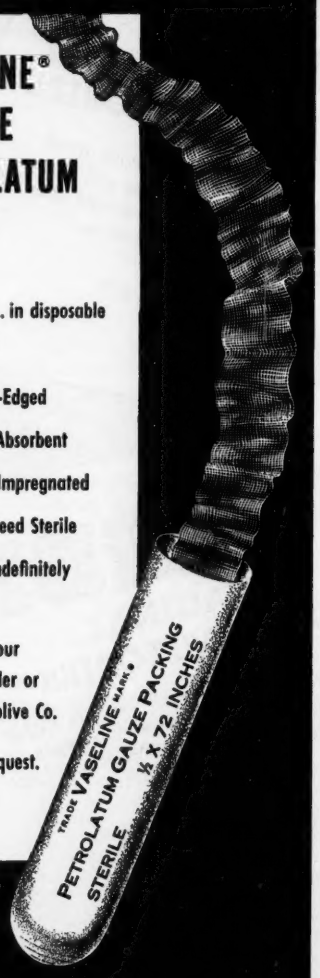

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A.Ph.A. President John A. MacCartney discusses the Pharmaceutical Marketing Orientation Seminar program presented by the New Jersey State University jointly with the Pharmaceutical Advertising Club of New York this fall with (left to right) Dean Roy A. Bowers, Rutgers College of Pharmacy, George Rooney, White Laboratories Director of Advertising, and W. M. Monday, Hoffmann-LaRoche Sales Promotion Mgr.

France—Henri Delepoulle (right) and Dr. A. Dansette, directors of Lipha, French pharmaceutical firm, arrived recently to confer with Norwich. Lipha is licensed to produce and market in France and its colonies Eaton's nitrofuran products.

Pennsylvania Board of Pharmacy—*Jacob H. Katz* and *Sol S. Turnoff* are the newest Board members.

Southern California Pharmaceutical Association—*George Q. Baird's* projected resignation because of ill health has been forestalled with a plan approved by his physician to retain Mr. Baird's services as the Association's Executive Secretary.

COLLEGES

Brooklyn College of Pharmacy is organizing a fete for *Dr. Hugo H. Schaefer* November 25 at the Waldorf Astoria in New York City on his return from a long delayed vacation trip to Europe taken after his retirement as Dean for 19 years. Dr. Schaefer has presented the College with a valuable collection of pharmaceutical antiques gathered over his 40 years as a teacher.

Detroit Institute of Technology—*Prof. J. V. Crandall* has been appointed Acting Dean of the College of Pharmacy. New faculty additions are: *Eli Broad*, C.P.A.; *Dr. E. H. Djao* of Washington (state); *Dr. Edward J. Eugere* of Connecticut.

Kappa Psi's Ray S. Kelley Memorial Award winner for 1956 is *Joseph D. Avellino*, a graduate student at the Philadelphia College of Pharmacy and Science.

Medical College of Virginia—Inauguration exercises for the installation of *Dr. Robert Blackwell Smith, Jr.*, as fourth President are scheduled for December 17.

Northeast Louisiana State College—*Ralph M. Wilson* heads the newly established College of

5 aids

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WITH MINERALS CAPSULES
for prevention and treatment of vitamin-mineral deficiencies
Bottles of 100 and 250, and 5,000 capsules.

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for prevention and treatment of vitamin B complex deficiencies
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KAPSEALS
vitamin-mineral supplement for the older age group
Bottles of 100 and 500 Kapseals.

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CAPSULES
comprehensive nutritional aid for use in prevention of and treatment for vitamin-mineral deficiency states
Bottles of 30, 100, 250, and 1,000 capsules.

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LIQUID VITAMIN SUPPLEMENT
orange-flavored aqueous supplement for prevention and treatment of vitamin deficiencies
Bottles of 4 ounces and 16 ounces.

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MEDICAMENTA VERA

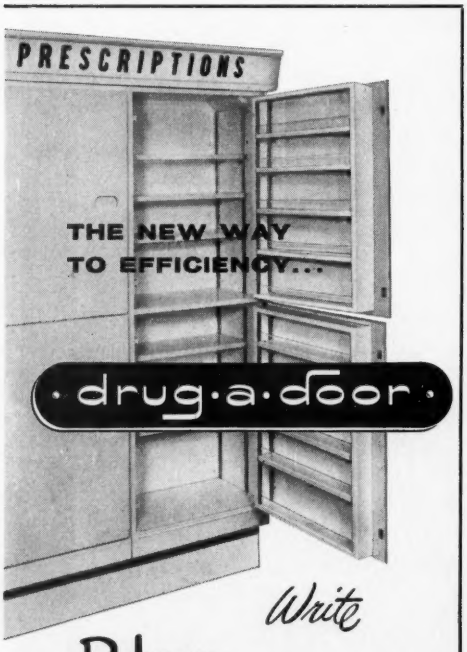
Pharmacy which opened this fall. Mr. Wilson comes to Northeast from the deanship at Ferris Institute, where *C. A. Andreson* is now Acting Dean.

State University of Iowa arranged a weekend pharmacy seminar program October 19–20 consisting of hour-long talks on major health problems today: tranquilizers, gerontology and the pharmacist, research advances in diabetic therapy, hazards of the household, and "atomic pharmacy." A physician discussed his profession's relations with the pharmacist. The Seminar began with *Dean Louis C. Zopf* on "Pharmaceutical Progress."

Rhode Island University—*Dr. Heber W. Youngken, Jr.*, Professor of Pharmacognosy, University of Washington, will become Dean of the Rhode Island University College of Pharmacy, formerly the Rhode Island College of Pharmacy and Allied Sciences, on January 1, 1957.

University of Houston—The pharmacy postgraduate clinic held October 4 brought together pharmacists, drug representatives, pharmacy owners and managers in the annual affair planned to keep them up-to-date on the profession. . . . *Dr. Bernard Misek* of Connecticut and *Dr. W. Homer Lawrence* of Maryland have been added to the teaching staff.

University of Texas—*Dr. William J. Sheffield* has become Assistant Dean of the College of Pharmacy replacing *Dr. William R. Lloyd*, who resigned to return to full-time teaching.



THE Bulman CORPORATION
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Yale University—*Dr. Howard W. Haggard*, author of "Devils, Drugs and Doctors" and "Staying Young Beyond Your Years," founder of the world-famous Yale Center of Alcohol Studies and popular teacher, has announced his retirement.

GOVERNMENT

National Library of Medicine—The Armed Forces Medical Library has been renamed and transferred to the U.S. Public Health Service, in accordance with the Act signed this summer by President Eisenhower. The Armed Forces Medical Library was founded in 1936 and today is considered one of the largest and most important medical libraries in the world.

Public Health Service—The first grants under a 3-year $90,000,000 program enacted by the recent Congress to aid public and private institutions in building more and better research facilities were announced. The newly created National Advisory Council on Health Research Facilities has awarded grants totaling $765,159, this to be matched on a 50-50 basis by the 7 institutions involved. More than 250 have applied for information and application forms.

HOSPITAL PHARMACY

American Association for the Advancement of Science—The Hospital Pharmacy Section will hold its annual convention December 29 at the Statler Hotel, New York City. *Dr. George F. Archambault* will preside. A panel discussion based on the papers presented will be moderated by *Paul Parker*, Director of the A.PH.A. Division of Hospital Pharmacy, with appropriate panel discussants chosen to represent the public, the community practitioners of pharmacy, drug industry, and the hospitals.

Northeastern New York Society of Hospital Pharmacists—The largest attendance ever experienced occurred at the recent meeting and testimonial dinner held in honor of Benjamin Teplitsky, Past President of the Society. . . . Recently elected officers are: President, *Louis P. Jeffrey*, Chief Pharmacist, Albany Hospital; Vice President, *Miss Josephine Stancampiano*, Chief Pharmacist, Amsterdam City Hospital; Treasurer, *Mrs. Violet Spaulding*, Chief Pharmacist, Memorial Hospital, Albany; Secretary, *Mrs. Virginia McBride*, Staff Pharmacist, St. Peter's Hospital, Albany.

MANUFACTURERS

Abbott Laboratories' publication *What's New* received an "award of distinctive merit" in the field of company publications from the Art Directors Club of New York. Also honored was a full-color Pentothal advertisement. In addition, *Financial World* magazine rated Abbott's 1955 annual financial report as best-of-industry.

American Cyanamid Company's new antibiotic process "Acronize," which preserves perishable foods both in conjunction with refrigeration and without it for longer periods, has just been cleared for commercial use by the Canadian government. Test salmon packed in ice containing 5 parts per million of Aureomycin and shipped from Seattle to the company's laboratories in Princeton, N.J., arrived firm

confines the cold
without confining
the patient

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(150,000 units Penicillin G Procaine)

combats bacterial infection • relieves cold symptoms

and for all infections responsive to oral penicillin

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MANUFACTURERS

Receiving the Lederle Award for Meritorious Community Service through Pharmacy from John Kip (r.) for Petty's Pharmacy, Newark, N.J., is J. A. Cohen, Secretary. The 71-year-old pharmacy has filled 4½ million prescriptions. On the left is Dean Roy Bowers of Rutgers U. College of Pharmacy and Newark Mayor L. P. Carlin (r.).

George F. Smith, Johnson & Johnson President, receives an honorary Doctor of Laws degree from the Most Rev. Thomas A. Boland, Archbishop of Newark and President of Seton Hall Univ. Board of Trustees.

and fresh. Accompanying salmon packed in ordinary ice had up to 300 times as many bacteria and was unsalable on arrival. To date "Acronize" has been approved in the U.S. for use on poultry.

Bristol Laboratories has been awarded a third U.S. patent on tetracycline. Its new method produces greater yields by direct fermentation.

Bristol-Myers Company—President *Lee H. Bristol* has been appointed Drug Industry Chairman of New York State's Citizens' Committee for the Public Schools. The Committee's members volunteer their services to all communities in the state interested in learning how other towns and cities are handling school problems.

Cutter Laboratories has elected *Ransom M. Cook* as a Director.

Lederle Laboratories—An innovation at the recent N.A.R.D. convention was the First Pharmaceutical Professional Service Clinic designed to both test and assist retail pharmacists in giving product information to the physician. Test products were Achromycin, Diamox, Gevral and Pathilon. Six physicians adjudged *Malvin Goldstein* of Birmingham, Ala., *Robert Lenz*, Butte, Mont., and *Joan Wade*, Indianapolis, Ind., among others, to have given outstanding professional presentations. A $50 U.S. Savings Bond was the prize.

Arthur D. Little, Inc., celebrates its 70th anniversary with a series of symposia on flavor research, the first of which was held November 19 at Cambridge, Mass.

Merck & Co.—*Reginald P. Lukens*, Production Consultant and former Vice President, has retired after a career of more than 40 years with Merck.

New Drug Institute, specialists in providing guidance and research to manufacturers in the development of new and improved products, announces *Dr. H. Sidney Newcomer* as its new Medical Director.

Parke Davis will be one of the first pharmaceutical firms to install Univac, the "electronic brain" which can execute 7,000 instructions per second and print the answers at the rate of 4 pages of a telephone directory every minute. The Remington-Rand machine will be used in all areas of clerical operation, from sales and inventory control to production and quality control.

Richlyn Laboratories—*Joseph F. Oakley*, teacher of pharmacy and chemistry for 26 years, has become Director of Research and Quality Control.

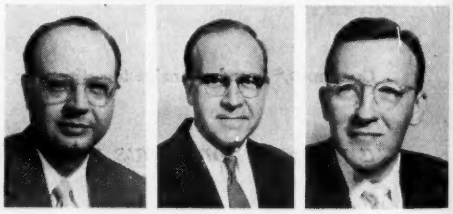
Schering—*Ralph Najarian*, Advertising Manager, will direct the newly created Audio-Visual Department. Supervisor of the Department, concerned with all technical exhibits, motion picture and slide films, etc., will be *Miss Harriette Reimers*.... The 1957 Schering Award Contest, offering $4,500 in cash prizes to medical students in the U.S. and Canada, will be based on papers in cardiology, mental disease, and the treatment of eye disorders.

Smith, Kline & French Laboratories—"The March of Medicine," first TV medical network series, will present the first nationwide color program on a medical subject November 27, chronicling the life work of a medical missionary to the Belgian Congo.

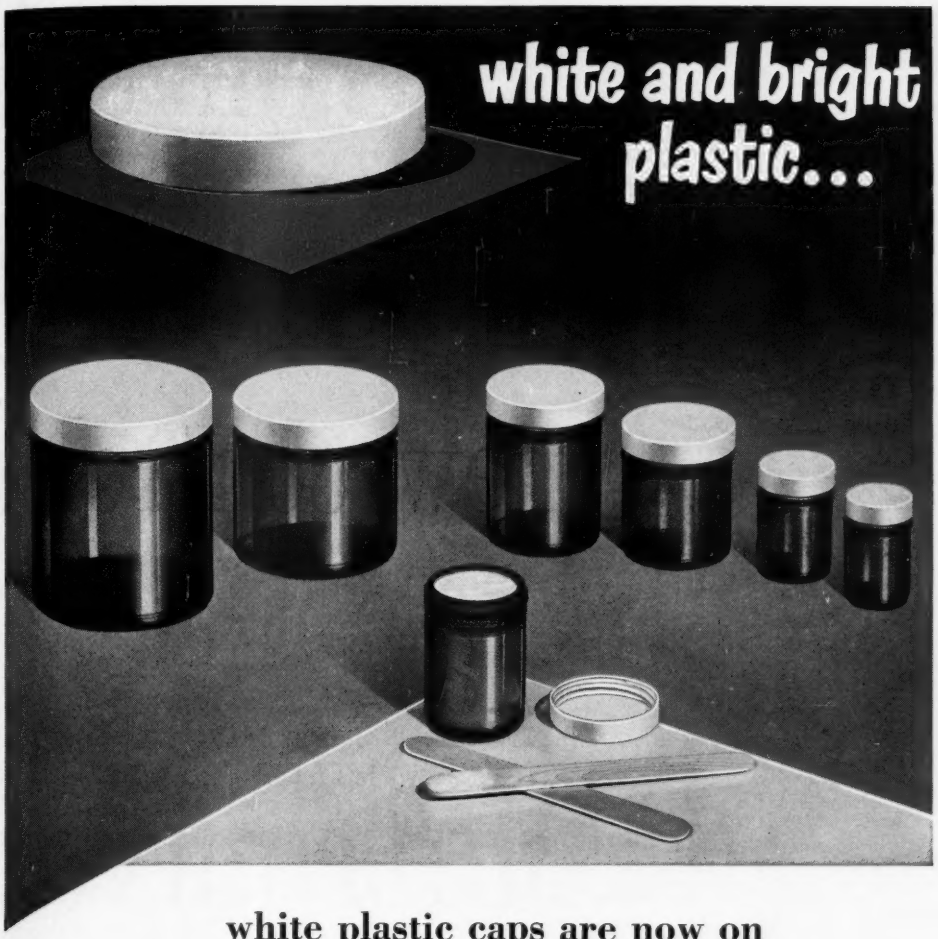
Squibb—*Paul A. Pumpian*, former faculty member of the University of Maryland School of Pharmacy, has joined the Patent Department of E. R. Squibb and Sons. Mr. Pumpian, an attorney as well as pharmacist, served as Faculty Adviser of the Student Branch and also as Secretary of the Baltimore Branch of the A.PH.A.

Vick Chemical—Entries for the 1957 Lunsford Richardson Pharmacy Awards competition must be in by December 15, 1956. Manuscripts must be received by March 3, 1957. Judges for the awards, amounting to $1,000 each to winning senior and graduate pharmacy students and an equal amount to their pharmacy colleges, will be: *Dr. Louis C. Zopf*, Dean of the State University of Iowa School of Pharmacy; *Dean Linwood F. Tice*, of the Philadelphia College of Pharmacy and Science; and *Dr. Justin L. Powers*, Editor of the J.A.PH.A. *Scientific Edition*.

Walker Laboratories—*William J. Quinn*, formerly Controller, has been elected Secretary-Treasurer.



Scientists in Lilly's research laboratories granted the title Research Associate in recognition of outstanding contributions are (left to right): Dr. Robert N. Hull, bacteriologist; Albert Pohland, organic chemist; Dr. Harold Boaz, physical chemist.



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DURAGLAS® Ointment Jars topped with these new white plastic caps have a clean, ethical appearance . . . maintain a professional look for your preparations. The durable plastic is unaffected by ointment ingredients . . . caps remain sparkling white while protecting the contents.

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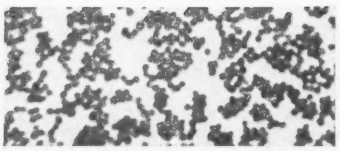

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per-infection with these strains.

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th erythromycin. No cross-resistance reported with tetracycline, oxytetracycline,
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The pronounced synergistic activity of MATROMYCIN *(oleandomycin) combined with tetracycline (particularly against many organisms resistant to commonly used antibiotic agents) is now available for clinical application in* SIGMAMYCIN* *(oleandomycin tetracycline).*

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Book Reviews

Blakiston's New Gould Medical Dictionary

2nd ed. By Normand L. Hoerr and Arthur Osol. McGraw-Hill Book Company, Inc., New York, 1956. xxvi + 1463 pp. $11.50.

This new edition makes a good medical dictionary even better. Modernized usage and spellings of terms are included, and about 12,000 items have been added. Drugs which are still in different stages of animal and clinical investigation are defined in this up-to-the-minute effort. The full and dependable coverage of the drug field is obviously attributable to co-editor Arthur Osol. He and Norman L. Hoerr, with two other members of the editorial board and 88 contributors, have prepared a very useful volume. Dr. Osol's knowledge in the field of nucleonics is evident in the full treatment of the new terminology relating to subatomic phenomena. No library is complete without a good medical dictionary, and this one is excellent.

A Textbook of Pharmacognosy

By N. M. Ferguson. vii + 374 pp. Macmillan Co., New York (1956). $7.

This book is designed as a teaching aid and since the chief emphasis in the study of pharmacognosy has shifted from drug identification to learning the properties of drug constituents, the author classified the textual matter biochemically. The introductory chapters expound, "Fundamental considerations in the study of pharmacognosy" and "The biosynthesis of plant constituents." These are followed by chapters in which drugs are divided under the headings: carbohydrates, glycosides, fats and related products, volatile oils, resins and related products, alkaloids, proteins and amino acids, enzymes, blood derivatives, bacterial products, allergents, antibiotics, vitamins, hormones, and products used as toxicants.

Descriptive discussions of drugs are supplemented by helpful tabulations. The text material is followed by lists of books for further reading at the end of each chapter and a general index is appended. Teachers of pharmacognosy should be interested in this new textbook.

Guides to Action on Chronic Illness

Published September 1956 by The National Health Council, 1790 Broadway, New York 19, N.Y. 88 pp. $1.

This Guide grew out of the 1956 National Health Forum conducted last March in behalf of its 51 national organization members. In a foreword, Philip E. Ryan, Executive Director of the National Health Council, reports thus:

"The great increase in the chronic illnesses is today confronting communities throughout the United States with the 'daily disaster' of sick and disabled people of all ages who are not receiving adequate care, not being helped to regain the self-sufficiency and productivity of which many of them are capable. Yet people generally are unaware of the problem. Too many health services and institutions are still geared to the needs of patients with acute short-term difficulties although the long-term ills now account for some three-fourths of the nation's daily sickness toll."

Leonard W. Mayo, Chairman of the Commission on Chronic Illness and Director of the Association for the Aid of Crippled Children, says: "Herein lies the problem and the challenge of chronic illness. No one agency, no one profession, no one program can prevail. Nor can fifty national or any number of local agencies, working separately, prevail. The prognosis calls clearly for the most extensive, complete, and effective unity of forces ever undertaken, outside of war, in our history."

Home care for the chronically ill, institutional care, the outreach of rehabilitation, meeting the costs, the role of the health department, and how community action can be launched and carried through are all discussed in the Guide. A check-list of services and facilities that each community should try to develop is also included.

BOOKS, PAMPHLETS, AND REPORTS

The Best Read Book in America

From the Match Industry Information Bureau, 500 Fifth Avenue, New York 36, N.Y. Free. Statistics and information on techniques of designing and distributing advertising matchbooks.

The Condensed Chemical Dictionary

5th ed. By Arthur and Elizabeth Rose. xix + 1200 pp. Reinhold Publishing Corp., New York (1956). $12.50.

Hidden Hunger Amidst Plenty

From E. R. Squibb and Sons, 745 Fifth Avenue, New York 22, N.Y. Free. Designed for the retail pharmacy customer to explain vitamins and the daily diet.

How to Get Industrial and Business Publicity

By C. E. St. Thomas, Advertising and Sales Promotion Manager of General Electric's Carboloy Division. Chilton Publications, Philadelphia, Pa. $5.

Lange's Handbook of Chemistry

9th ed. Edited by Norbert Adolph Lange and Gordon M. Forker. xvi + 1969 pp. Handbook Publishers, Inc., Sandusky, Ohio (1956). $8.50.

A Review of the Air Force Materials Research and Development Program

By Mary M. Sokas. 137 pp. OTS, U.S. Department of Commerce, Washington 25, D.C. $3.50. Contains abstracts of research in biochemistry, petroleum products, plastics, packaging, protective treatments, adhesives, metallurgy, etc.

Versatol and Typical Procedures in Electrolyte Chemistry

From Warner-Chilcott Laboratory Supply Division. 10 pp. Free. Part I of a series of blood chemistry manuals being made available to teaching institutions and laboratories.

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Produced by Transfilm; in color; 18 minutes. LIFE Magazine's account of what has been happening to the American consumer market.

Rx—Miltown for Everytown

Wallace Laboratories. A full-color sound slide film produced for drug salesmen.

The Atom in Your Community

From the Department of Manufacture and Industrial Development, U.S. Chamber of Commerce, Washington 6, D.C. 15¢. In question-and-answer form on industrial, medical, and agricultural uses.

The Petrified River

Produced cooperatively by the Bureau of Mines and the Union Carbide and Carbon Corporation. 16 mm. Running time 28 minutes. Available free to industrial, educational and civic groups, etc., at an early date from 4800 Forbes Street, Pittsburgh, Pa. The story of uranium, its geology, exploration, mining, use in reactors, and in producing radioisotopes.

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1. A true "tranquilizer" with specific action in psychic and psychosomatic conditions. Indicated in mild and moderate mental and emotional disturbances encountered in everyday practice.
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Side effects are minimal and transitory.

Dosage: In most patients, one 5 mg. tablet three or four times daily is effective. Some patients may require 10 mg. three or even four times a day. *Only in the rarest instances should this latter dosage be exceeded.*

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STUDENT & LOCAL BRANCHES

LOCAL BRANCHES

Baltimore Branch—The October 25 meeting was held in conjunction with the Baltimore Retail Druggists' Association. *Dr. A. A. Silver*, Chief of the Diabetic Clinic at Sinai Hospital, presented a talk on "Oral Therapy in the Management of Diabetes Mellitus."

Chicago Branch—"Change Creates Opportunity" was the topic discussed by *Joseph J. Shine*, Editor of the *Central Pharmaceutical Journal*, at the October 3 meeting. During the evening the following organizations exhibited professional displays for possible use in connection with the observance of National Pharmacy Week: Abbott Laboratories, Humiston-Keeling, Owens-Illinois, Parke-Davis, Upjohn, and the Armstrong Company.

A.Ph.A.'s Charles C. Rabe (center) receives a 2-volume History of the Philadelphia College of Pharmacy and Science from Thomas Smith (left), President of the A.Ph.A. Student Branch. Dr. Martin Barr, Faculty Adviser, is on the right.

Cuban Branch—*Dr. Ricardo Galbis*, a member of the Cuban Branch, gave a comprehensive report at the September meeting on the Seminar on Pharmacy Administration sponsored by the American Association of Colleges of Pharmacy at the University of Texas at Austin, Tex., last July. At the August meeting *Dr. Eusebio Viciedo*, faculty member of the University of Oriente, Santiago de Cuba, was guest speaker. He used slides to illustrate his talk on "Microbiology at the Service of Industry."

Indianapolis Branch—The meeting on September 26 was addressed by *Dr. Ira Paul*, faculty member of the Butler University College of Pharmacy, on the subject "Pharmaceutical Application of Radioisotopes." *J. Warren Lansdowne* was congratulated by the Branch on being elected First Vice President-elect of the AMERICAN PHARMACEUTICAL ASSOCIATION. *Benjamin S. Smith*, President, appointed various committees during the business session that followed.

Northern California Branch—The September meeting featured addresses on "What Public Relations Is" by *Michelle Lippman*, author of *Point of Law*, and "What Public Relations Is Not" by *Berton Ballard*, Public Relations Manager for the California State Bar. A discussion period followed the talks.

The Northern California Branch of the A.PH.A., the University of California Student Branch of the A.PH.A., the Northern California Society of Hospital Pharmacists, and the Northern California Pharmaceutical Association jointly sponsored a banquet meeting at the Claremont Hotel in Berkeley, October 11 to highlight National Pharmacy Week. *Dr. Robert P. Fischelis*, Secretary of the A.PH.A, was the main speaker of the evening. "The Price of Professional Prestige" was the subject of his address.

Northern New Jersey Branch held its October 10 meeting in conjunction with the Student Branch at Rutgers University College of Pharmacy. *Benjamin Schultz*, President-elect of the New Jersey Pharmaceutical Association, was guest speaker. His address dealt with the subject "A Design for Grassroots Public Relations." *Charles C. Rabe*, Assistant to the A.PH.A. Secretary, addressed the meeting briefly regarding the observance of National Pharmacy Week.

Philadelphia Branch—"Tablet Coating by Compression" was the subject presented by *Dr. Jack Cooper*, Ciba Director of Pharmaceutical Development, at the October 11 meeting. Dr. Cooper has been intimately associated with the problems involved in the development of this type of coating. *Charles C. Rabe*, Secretary to the Public Relations Committee of the A.PH.A., was guest speaker at a dinner preceding the meeting. Mr. Rabe spoke on "National Pharmacy Week."

The 1956–57 season marks the 50th Anniversary of the Philadelphia Branch of the A.PH.A.

Southeast Texas Branch—At a meeting on September 19 the Branch was addressed by *Dr. Denten Cooley*, Professor of Heart Surgery at Baylor Medical School. Dr. Cooley's presentation included color films showing two heart operations. He described the various steps in the operations and answered questions concerning this type of surgery.

St. Louis Branch—A joint meeting was held October 3 with the St. Louis Chapter of the American College of Apothecaries. The Branch voted favorably on the suggestion made by *Leroy A. Weidle, Jr.*, President of the Branch, that a contribution be made to the A.PH.A. Building Fund. Speaker for the evening was *Leo J. McMahon*, Editor of *Midwestern Druggist* and Professor of Pharmacy Administration at the University of Kansas City School of Pharmacy. His subject was "The Improvement of Public Relations of Pharmacy."

(Continued on page 742)

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*In constipation..."the consistency of the stool is more important than the frequency of defecation or the quantity expelled."**

* Cecil, R. L., and Loeb, R. F., eds.: A Textbook of Medicine, ed. 9, Philadelphia, Saunders, 1955. p. 880.

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MOLOFAC

Squibb Dioctyl Sodium Sulfosuccinate

relieves or prevents constipation by softening the stools

Molofac softens stools by lowering surface tension in the intestine, permitting water to mix more thoroughly with the fecal matter. Molofac fosters natural, spontaneous defecation...*it is not a laxative or a cathartic.*

In mild constipation—Adults and older children: 1 or 2 capsules daily. Children 6 to 12 years old: 1 capsule daily.

In more severe constipation—Adults and older children: an initial dose of 2 capsules twice daily for three days, with 1 or 2 capsules daily thereafter. Increased dosages may sometimes be required.

NOTE: The stool-softening effect of Molofac is usually evident 1 to 3 days after the beginning of treatment.

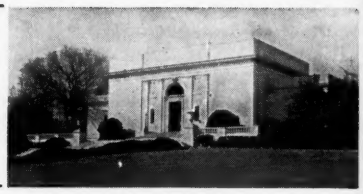
Supply: Bottles of 30 and 100 capsules. Each clear, red, one-piece capsule contains 60 mg. of dioctyl sodium sulfosuccinate.

SQUIBB *Squibb Quality—the Priceless Ingredient*

"SURFAK" IS A SQUIBB TRADEMARK

STRAIGHT FROM HEADQUARTERS

ROBERT P. FISCHELIS, SECRETARY



Constructive Statesmanship Required

I

AT THE 1955 meeting of the National Drug Trade Conference it was declared that "the solution of the 'restrictive sales controversy' is the most important contemporary problem confronting members of the Conference. The continuance of the controversy seriously impairs the public relations of the drug industry, trade and profession; retards the growth of good relations among themselves; denies to them and through them to the public the full fruits of harmonious relations among the respective educational, professional, regulatory, manufacturing and distributing constituents. It may also have a bearing on pharmacy's present and future interprofessional and public health relations."

This statement was generally accepted by the Conference as factual, and it was determined by resolution that certain action should be taken to solve this "contemporary problem" and thus pave the way for improved relationship between the various segments of pharmacy and the drug industry which everyone is seeking.

What has happened since December 1955 to bring us closer to the desired solution?

On the credit side, we can list the following:

(1) There have been a number of meetings of members of the subcommittee which was appointed to give consideration to the "restrictive sales controversy" and authorized to engage competent staff and clerical assistance for this purpose. It is anticipated that this committee will report substantial progress to the Conference on December 3.

(2) Members of the drug manufacturing industry are by no means united in their attitude on which drugs should be restricted to sale under professional supervision, but there is evidence of a distinct desire on the part of some of the leaders in this field to end the controversy. By no means do all manufacturers support the idea of distributing over-the-counter drugs through any kind of retail outlet. It is dawning upon many that marketing a drug product through non-professional channels is damaging to the prestige of such product.

(3) It is becoming more and more evident that new drugs which start off with sensational publicity in lay publications are frequently found to have side reactions which make them unsafe for general use, unless they are administered under strict medical control. This points up the necessity for interpretation of labeling and literature by competent distributors and gives emphasis to the necessity for having pharmaceutically educated persons at the distributing as well as the production end of the line from the experimental laboratory to the bedside of the patient.

On the debit side, we must report, unfortunately: That (1) There is still too little appreciation on the part of some proprietary medicine manufacturers of the importance of having drugs distributed through legally authorized pharmacies.

(2) The classification of drugs under the Federal Food, Drug and Cosmetic Act into prescription and non-prescription categories without restriction as to where the non-prescription drugs should become available to the purchaser, continues to be a handicap. In fact, it is rapidly becoming a serious menace to the public health.

(3) The contining policy of the Federal Food and Drug Administration to be unconcerned about where drugs are dispensed as long as they are considered safe because their labeling provides so-called adequate directions for use.

II

Every time a group representing the manufacturers of proprietary medicines and a group representing the profession of pharmacy meet for formal or informal discussion of this "most important contemporary problem," it is indicated that there must be some

way of avoiding the continuance of controversy on this subject.

Manufacturers usually express the view that only a relatively few drugs are involved in the controversy; that by and large, the proprietary medicine industry respects the profession and its services and has no desire to see the pharmacist deprived of his professional prerogatives; that provision should be made in pharmacy laws to permit the unrestricted sale of certain fast-selling proprietary products, on the basis that they have become home remedies, the administration of which requires no special warning to the public as long as the products are properly labeled.

Pharmacists, on the other hand, take the position, and we believe properly so, that it is contrary to the public interest to exempt any class of drugs from necessary professional supervision and permit its distribution by anyone, anywhere.

III

The fact that a public body as important as the Legislature of the State of New York has declared itself tired of the controversy which occurs annually when amendments to the State Pharmacy Act are offered seeking either to liberalize or to tighten restrictions on drug distribution is significant for all states. In New York it has led to the appointment of a committee of the State Legislature to study the question and recommend legislation on the subject which is in the best interest of the public. In 1957, forty-seven State Legislatures will be in session and if each one were to follow the same procedure, the question at issue would come before the public very forcefully. Just what the answer would be in each instance might vary with the forcefulness and logic of the presentation by the opposing groups. It is certain that arguing this question before committees of 47 State Legislatures would prove very expensive in time and money. Would it not be much better if the profession and the industry could have a meeting of minds on this entire question and go before these legislative bodies with a well-conceived program that would be in the public interest and also solve this "most important contemporary problem?"

The National Drug Trade Conference will have an opportunity to review this problem again at its meeting on December 3.

If the representatives of all segments of the profession of pharmacy and the drug industry could agree on certain fundamentals, there would be little difficulty in bringing about a united front. This would raise the prestige of pharmacy in the eyes of legislative bodies considerably and would benefit both the profession and the industry immeasurably.

Agreement on these fundamentals and their application to every phase of pharmaceutical activity should not be a difficult task for men who are called upon to exhibit qualities of leadership and constructive statesmanship every day in their professional, inter-professional and public relations.

Important Meeting of the House of Delegates

While it was not exactly planned that way, it now appears that the First Interim Meeting of the House of Delegates of the AMERICAN PHARMACEUTICAL ASSOCIATION to be held in Washington, D.C., November 10 and 11 will come at a time when policy decisions for American pharmacy are of the greatest importance.

The world situation in general, and the fact that the meeting is being held so shortly after the national elections and preceding the opening session of the 85th Congress of the United States and the sessions of 47 state legislatures adds unusual significance to the occasion.

The House of Delegates of the A.PH.A. is the most representative body in American pharmacy, geographically as well as vocationally. Its presiding officer this year is Dr. Troy C. Daniels, Dean of the School of Pharmacy of the University of California, whose photograph appears on the front cover of this issue.

Dr. Daniels is a noted scientist and pharmaceutical educator. Born in Worth, Mo., in 1899, he received his education in Wyoming, Michigan and Indiana. He graduated in pharmacy from the University of Indiana in 1929.

He taught pharmacy at the State College of Washington from 1923 to 1927, and organic chemistry at the University of Indiana from 1928 to 1929. In July 1929 he moved to San Francisco to become Assistant

Professor of Pharmacy at the College of Pharmacy of the University of California, and in 1933 he was appointed Professor of Pharmaceutical Chemistry at the same institution. He became Assistant Dean of the College of Pharmacy in 1937 and Dean in 1944.

Dr. Daniels has served as President and member of the Executive Committee of the American Association of Colleges of Pharmacy. He joined the A.PH.A. in 1927 and has been active on various committees of the ASSOCIATION and was First Vice President last year. He was a member of the American Council on Pharmaceutical Education and also a member of the U.S.P. Revision Committee. He has served on many University of California committees and in various administrative posts and is a member of numerous scientific and professional organizations. Dr. Daniels was one of the five members of the A.PH.A. mission to Japan, which offered recommendations on the basis of which the practice of pharmacy in Japan was modernized. Dr. Daniels is the author or co-author of some sixty publications and has carried on extensive researches in pharmacy and pharmaceutical chemistry.

Keep These Dates in Mind

THE 105th meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION and meetings of related and affiliated organizations will be held in New York City, April 28 to May 3, 1957. These are dates to be remembered because this meeting will undoubtedly bring together the largest number of pharmacists in all branches of the profession that has assembled in recent years. Program plans are under way now and in due course each member will receive a form on which to make requests for hotel reservations. The Hotel Statler will be the headquarters and practically all meetings, dinners, and most of the entertainment, exclusive of sightseeing, will be scheduled in the headquarters hotel.

Later in 1957, during the week of November 3, the Fourth Pan-American Congress of Pharmacy and Biochemistry will be held in Washington, D.C., with the Mayflower Hotel as headquarters.

Conventions of the AMERICAN PHARMACEUTICAL ASSOCIATION and its affiliated and related groups are always outstanding because of the all-inclusiveness of the programs and the opportunity for pharmacists in all of the vocational branches of pharmacy to meet and review the problems of the day.

New York with its many other attractions is an ideal gathering place for scientific and professional groups. The year 1957 also marks the 50th anniversary of the founding of the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION and due cognizance will be taken of this event at some time during the meeting. Dean Emeritus John L. Dandreau of St. John's University College of Pharmacy has been named general chairman of the Convention Committee and he will be assisted by a very able committee and subcommittees. Announcement of the appointees to the various committees will be made shortly after the next meeting of the Council which is scheduled for November 11 and 12.

Dr. Herman C. Nolen, President of McKesson and Robbins, has accepted the chairmanship of the Finance Committee.

N.F. Interim Revision

IN LINE with the announcement appearing in each copy of the National Formulary X we are making available on pages 725 to 729 another Interim Revision Announcement. These pages can be cut and inserted in the N.F. X pocket on the inside back cover of the book. Reprints of this announcement can be obtained without charge by sending a request with a self-addressed stamped envelope to the AMERICAN PHARMACEUTICAL ASSOCIATION, Committee on National Formulary, 2215 Constitution Avenue, N. W., Washington 7, D.C.

This is the Second Interim Revision Announcement. These announcements are designed to publicize minor additions, changes, and corrections and other revisions of limited scope. Supplements to the N.F. covering a wider scope are issued where necessary and while these may also be published in one or more of the ASSOCIATION's publications, they will be sent in pamphlet form by mail directly to every purchaser of a National Formulary X who has filled in and mailed the post card furnished for that purpose with each copy of the N.F.

No Supplement to the N.F. X has been issued thus far. Ample notice of such publication will be given if, as, and when it is deemed advisable to issue a Supplement.

SECOND INTERIM REVISION ANNOUNCEMENT

NATIONAL FORMULARY X

Official from October 1, 1956

By virtue of the authority conveyed in Chapter III, Article X and Chapter IX, Article V of the By-Laws of the American Pharmaceutical Association, the Council of the Association appointed the Committee on National Formulary, approved the text of this Interim Revision Announcement prepared by the Committee, authorized the printing thereof, and fixed October 1, 1956, as the date upon which it shall become official.

ROBERT P. FISCHELIS, *Secretary*
Council of the A. PH. A.

JUSTIN L. POWERS, *Chairman*
Committee on National Formulary

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ADDITIONS, CHANGES, AND CORRECTIONS

The page numbers cited, unless otherwise indicated, refer to N. F. X.

Calcium Lactate, page 122—Change the first sentence in the paragraph entitled *Magnesium and alkali salts* to read:

Magnesium and alkali salts—Mix 1 Gm. of Calcium Lactate with 40 ml. of water, carefully add 1 ml. of hydrochloric acid, heat the solution to boiling, and add rapidly 40 ml. of oxalic acid T.S.

Cobalamin Concentrate, page 167—Delete the paragraph entitled *Microbiological assay* and replace it by the following:

Assay—Proceed as directed under *Cobalamin Assay*, page 727, This Interim Revision Announcement.

Dihydrocodeinone Bitartrate, page 193—Change *Identification Test B* to read:

Identification—
B: Dissolve about 250 mg. of Dihydrocodeinone Bitartrate and 500 mg. of hydroxylamine hydrochloride in 2.5 ml. of water contained in a 50-ml. Erlenmeyer flask. Cover the neck of the flask and heat on a steam bath for 35 minutes. Cool to room temperature and add ammonia T.S., dropwise, until the oxime precipitates, shaking the flask after the addition of each few drops of ammonia T.S. Place the flask in an ice bath for 10 minutes, and collect the oxime on a small suction filter. Wash the precipitate with 5 ml. of water containing 1 per cent ammonia (made by diluting 1 ml. of ammonia T.S. to 10 ml.), remove the excess water by suction, and dry the precipitate for 3 hours at 105°: the dihydrocodeinone oxime melts with decomposition between 261° and 265°, page 691.

Hexavitamin Capsules, page 271—In the first paragraph following ". . . 2 mg. of thiamine hydrochloride," add "or an equivalent amount of thiamine mononitrate, . . ."

Hexavitamin Tablets, page 273—In the first paragraph following ". . . 2 mg. of thiamine hydrochloride," add "or an equivalent amount of thiamine mononitrate, . . ."

Ichthammol, page 294—Change the first line of the paragraph entitled *Loss on drying* to read:

Loss on drying—Dry Ichthammol at 80° for 8 hours and continue. . . .

Iodine Solution, page 299—Change the first four lines in the paragraph entitled *Assay* to read:

Assay—Place exactly 5 ml. of Iodine Solution in a 500-ml. glass-stoppered flask, and dilute with 10 ml. of water. Titrate with 0.1 *N* potassium arsenite using starch T.S. as the indicator. Each ml. of 0.1 *N* potassium arsenite is equivalent to 12.69 mg. of I. To the titration mixture add 25 ml. of hydrochloric acid and 5 ml. of. . . .

Iodine Tincture, Strong, page 300—Change the first four lines in the paragraph entitled *Assay* to read as directed under *Iodine Solution*.

Lithium Bromide, page 330—In the paragraph entitled *Chloride* change "(700 parts per million)" to "(0.7 per cent)."

Mannitol, page 347—Change the paragraph entitled *Melting range* to read:

Melting Range—Mannitol melts between 165° and 168°, page 691.

Methionine, page 377—Change the first paragraph in the monograph to read:

Methionine contains not less than 99 per cent of $C_5H_{11}NO_2S$.

Change the paragraphs entitled *Ammonium salts*, *Heavy metals*, *Iron*, and *Assay* to read:

Ammonium salts—

Stock solution of ammonium chloride—Dissolve 78.5 mg. of ammonium chloride in sufficient water to make exactly 250 ml., and dilute 10 ml. of this solution to 100 ml. The dilute solution contains the equivalent of 10 mcg. of NH_3 in each ml.

Procedure—Place 5 Gm. of sodium hydroxide pellets and 300 ml. of water in a 500-ml. distillation flask. Remove ammonia from the solution by distilling until 25 ml. of the distillate gives no color with 0.5 ml. of alkaline mercuric-potassium iodide T.S. Allow the solution in the distillation flask to cool and add 200 mg. of Methionine. Distil, collecting two 25-ml. fractions in 50-ml. Nessler tubes. Add 0.5 ml. of alkaline mercuric-potassium iodide T.S. to the distillates and to a series of standards, prepared by dilution of the ammonium chloride stock solution, containing the equivalent of 0, 5, 10, 15, and 20 mcg. of ammonia in 25 ml. of solution. Stopper the tubes and invert them several times to mix their contents. After allowing 10 minutes for color development, determine the amount of ammonia present in the distillates by comparing their color intensities with those of the standards. If the second 25 ml. of distillate from the Methionine sample contains appreciable ammonia, distil and collect additional 25-ml. fractions and determine their ammonia content. Methionine contains not more than 100 parts per million of NH_3.

Heavy metals—Dissolve 500 mg. of Methionine in 20 ml. of water, add 1 ml. of 1 *N* hydrochloric acid and water to make 25 ml.: the heavy metals limit, page 678, for Methionine is 20 parts per million.

Iron—Dissolve 1 Gm. of Methionine in 40 ml. of water, add 2 ml. of hydrochloric acid and about 50 mg. of ammonium persulfate, dilute to 50 ml., and mix well. To this solution add 3 ml. of ammonium thiocyanate T.S., and mix thoroughly: the color obtained is no darker than that produced in 50 ml. of a solution containing 70 mcg. of ferrous ammonium sulfate (equivalent to 10 mcg. of Fe) when treated in the same manner. Methionine contains not more than 10 parts per million of Fe.

Assay—Dissolve 12 Gm. of sodium acetate and 2 Gm. of potassium iodide in 100 ml. of water in a glass-stoppered flask. Determine the pH of the solution, and, if necessary, adjust it with 0.1 *N* hydrochloric acid to a pH of between 6 and 7. Add about 300 mg. of Methionine, accurately weighed, to the solution and shake the mixture until the Methionine is dissolved. Add exactly 50 ml. of 0.1 *N* iodine, ...

Petrolatum, Liquid, Light, page 431—Change the second sentence of the first paragraph to read:

Not more than 10 parts per million of a suitable form of tocopherol may be added as a stabilizing agent.

Pyrogallol, page 478—Change the paragraph entitled *Melting range* to read:

Melting range—Pyrogallol melts between 130° and 134°, page 691.

Rutin, page 498—Change the Category statement, page 500, to read:

CATEGORY—Bioflavonoid.

Sodium Thiocyanate, page 547—Change the first two lines in the paragraph entitled *Arsenic,* page 548, to read:

Arsenic—Sodium Thiocyanate meets the test for *Arsenic,* page 649. Prepare the solution to be tested (*under a well-ventilated hood*) as follows:

GENERAL TESTS, PROCESSES, AND APPARATUS

Cobalamin Assay—Add the following procedure on page 659, preceding the section on *Congealing Range or Temperature.*

COBALAMIN ASSAY

Cyanocobalamin Tracer Reagent—Dilute an accurately measured volume of a standardized solution of radioactive cyanocobalamin* with sufficient water containing 1 per cent of benzyl alcohol to yield a solution having a radioactivity between 500 and 5000 counts per minute per ml. Determine the radioactivity of this reagent by measurement in a suitable counting assembly, adjusting the concentration of the tracer reagent so as to obtain optimum counting accuracy with the particular assembly used. Store in a refrigerator.

Standardization—Prepare a solution in water of a weighed quantity of U. S. P. Cyanocobalamin Reference Standard to contain between 20 mcg. and 40 mcg. in each ml. To determine the degree of recovery of a known amount of cyanocobalamin, perform the entire assay on a 10-ml. portion of this solution, proceeding as directed under *Assay Preparation,* beginning with "Add water to make a measured volume . . ." Calculate the recovery factor F by the formula $(50 \times A_{361})/(0.207 \times E \times R)$, in which R is the quantity, in mcg. of U. S. P. Cyanocobalamin Reference Standard in the portion of the solution taken, and E is defined under *Calculation.*

Cresol-Carbon Tetrachloride Solution—Mix equal volumes of carbon tetrachloride and freshly distilled cresol.

Phosphate-Cyanide Solution—Dissolve 100 mg. of potassium cyanide in 1000 ml. of a saturated solution of dibasic sodium phosphate, and mix well.

Butanol-Benzalkonium Chloride Solution—Mix 1 volume of a 12.8 per cent solution of benzalkonium chloride with 9 volumes of normal butyl alcohol.

Alumina-Resin Column—Place a pledget of glass wool in the bottom of a constricted glass tube such as a 50-ml. buret. With the tube held in an upright position, add a volume of a slurry of ion-exchange resin in water sufficient to give a column of settled resin 7 cm. in height. When the solid has settled somewhat, allow the water to drain so that there is only 1 cm. of liquid above the resin column, and tamp the resin lightly. Then add a volume of a slurry of alumina in water sufficient to increase the height of the settled column to 10 cm., and allow the water to drain to about 1 cm. from the top of the alumina. Add a pledget of glass wool, and wash the column, using a total of 50 ml. of water and again draining to within 1 cm. of the top of the column. Prepare a fresh column for each determination.

Assay Preparation—Transfer to a beaker a weighed quantity or measured volume of the preparation to be assayed, equivalent in vitamin B_{12} activity to that of 200 to 500 mcg. of cyanocobalamin. Add water to make a measured volume of not less than 25 ml., then add 5.0 ml. of *Cyanocobalamin Tracer Reagent.* Add, while working *under a hood,* 5 mg. of sodium nitrite and 2 mg. of potassium cyanide for each ml. of the resulting solution. Adjust the solution to approximately pH 4 with diluted hydrochloric acid, and heat on a steam bath for 15 minutes. Cool, and adjust the pH to between 7.6 and 8.0 with sodium hydroxide T.S. Centrifuge or filter to remove any undissolved solids.

Procedure—Transfer the *Assay Preparation* to a 250-ml. centrifuge bottle, add 10

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* A solution of cyanocobalamin made radioactive by the incorporation of Co^{60} is available from Merck and Co., Inc., Rahway, N. J. Orders must be accompanied by authorization Form 374 after approval by the United States Atomic Energy Commission, Oak Ridge, Tenn.

ml. of *Cresol-Carbon Tetrachloride Solution*, suitably close the bottle with a glass, polyethylene, or foil-wrapped rubber stopper, shake vigorously for 2 to 5 minutes, and centrifuge. Remove and save the lower, solvent layer. Repeat the extraction using a 5-ml. portion of *Cresol-Carbon Tetrachloride Solution*, and combine the lower, solvent-layer extracts in a centrifuge bottle or separator of 50- to 100-ml. capacity.

Wash the combined extracts with successive, 10-ml. portions of dilute sulfuric acid (1 in 7) until the last washing is practically colorless (two washings usually suffice). During each washing, shake for 2 to 5 minutes, allow the layers to separate, centrifuge if necessary, and discard the acid layer. Wash further with two successive, 10-ml. portions of *Phosphate-Cyanide Solution*. Finally, wash with 10 ml. of water. Discard all of the washings.

To the washed extract add 30 ml. of a mixture of 2 volumes of *Butanol-Benzalkonium Chloride Solution* and 1 volume of carbon tetrachloride. Extract with two successive, 5-ml. portions of water, each time shaking vigorously for 1 minute, centrifuging, and removing and saving the upper, aqueous layer.

Pass the combined aqueous extracts through the *Alumina-Resin Column* at a rate of about 1 ml. per minute, maintaining a 1-cm. layer of liquid on the head of the column by adding water as needed. Discard as much of the forerun as is colorless (usually about 5 ml.), and collect the colored eluate (usually about 10 ml.) in a 50-ml. centrifuge tube or separator containing 0.5 ml. of diluted acetic acid. Extract the eluate by shaking for 2 to 5 minutes with 5 ml. of *Cresol-Carbon Tetrachloride Solution*, and discard the upper, aqueous layer. To the extract add 5.0 ml. of water, 5 ml. of carbon tetrachloride and 10 ml. of normal butyl alcohol. Shake, allow to separate until the upper layer is clear, and remove the upper, aqueous layer.

Determine the absorbance of the aqueous extract at 361 mμ and 550 mμ in a spectrophotometer suitable for measurements in the ultraviolet region, using a tungsten light source. Make the 361-mμ reading using a filter capable of reducing stray light. Calculate the ratio A_{361}/A_{550}: the purity of the aqueous extract is acceptable if the ratio is not less than 3.10 and not more than 3.40. If a ratio outside this range is observed, purify the aqueous extract by repeating the extraction cycle, proceeding as directed in the foregoing paragraph, beginning with "Pass the combined aqueous extracts through the *Alumina-Resin Column*," and using a fresh column.

If an acceptable absorbance ratio is observed in the aqueous extract, transfer 1.0 ml. of it to each of 3 suitable aluminum or stainless steel planchets, and evaporate to dryness under an infrared heater. Add 1.0 ml. of *Cyanocobalamin Tracer Reagent* to each of 3 similar planchets, and evaporate to dryness in the same manner.

Measure the radioactivity of the contents of each planchet in a suitable counter over a period optimum for the particular counting assembly used. Average the results, and correct the average for the observed background radioactivity determined over two or more 30-minute periods.

Calculation—Calculate the efficiency, E, of the extraction process by the formula $E = (C_s - C_b)/(C_R - C_b)$, in which C_s and C_R are the average radioactivity counts per minute for the preparation under assay and the *Cyanocobalamin Tracer Reagent*, respectively, and C_b is the average count per minute of the background. The cobalamin content, expressed in mcg. of cyanocobalamin, of the portion taken for assay is given by the formula $(50 \times A_{361})/(0.207 \times E \times F)$, in which F is the recovery factor calculated in the standardization of the *Cyanocobalamin Tracer Reagent*.

Containers—Glass, page 660—Delete the sixth and seventh sentences under *Powdered Glass Test* (in lines 7–13, page 661), and substitute therefor the following:

Shake the sieves for a short time, then remove the glass from the No. 20 and No. 40 sieves, and recrush and sieve as before. Repeat again this crushing and sieving operation. Empty the receiving pan, reassemble the nest of sieves, and shake on a mechanical sieve shaker for 5 minutes or by hand for an equivalent length of time.

Delete the last complete sentence on page 661, and substitute therefor the following:

Reduce the heat so that the autoclave cools at the rate of 0.5° per minute and comes to atmospheric pressure in 38 to 46 minutes, being vented as needed to prevent the formation of a vacuum.

In the section, *Water Attack at 121°*, page 662, delete the fourth sentence beginning in line 7 and ending in line 10 of the paragraph, and substitute therefor the following:

Using a graduated cylinder, transfer 100 ml. of the water from each container or, in

the case of smaller containers, the combined contents of several containers, into a 250-ml. Erlenmeyer flask of resistant glass, add 5 drops of *Methyl Red Solution* and titrate, while warm, with 0.02 *N* sulfuric acid.

In the section, *Acid Attack at 121°*, page 662, delete the third sentence beginning in line 3 and ending in line 6 of the paragraph, and substitute therefor the following:

Fill each container to 90 per cent of its overflow capacity with 0.0002 *N* sulfuric acid in place of water, unless it is expected that more than the equivalent of 0.80 ml. of 0.02 *N* sulfuric acid per 100 ml. of contents will be neutralized by alkaline material extracted from the bottle, in which case use 0.0005 *N* sulfuric acid. Cover and autoclave the containers as directed under *Water Attack at 121°*. Remove the containers from the autoclave, and cool to room temperature. Using a pipet, transfer exactly 100 ml. of the acid from each container or, in the case of smaller containers, the combined contents of several containers, into a 250-ml. Erlenmeyer flask of resistant glass, and add 5 drops of *Methyl Red Solution*.

Sterility Tests, page 719—Change the third line of the fourth paragraph under *Culturing*, page 723, to read:

. . . on the third, fourth, or fifth day, suitable portions of this turbid medium to additional tubes of . . . .

REAGENTS AND TEST SOLUTIONS

Reagents, page 741—Reagent specifications for *Alumina* and *Ion-exchange Resin*, required in the *Cobalamin Assay*, page 727, This Interim Revision Announcement, are added to this section.

Alumina—Add the following to page 742:

Alumina (*Aluminum Oxide Acid-washed for Chromatography, Chromatographic Alumina*)—A white or practically white powder. Store it in well-closed containers.

Adsorptive power—

Stock o-Nitroaniline Solution—Weigh accurately 100 mg. of *o*-nitroaniline, and transfer it to a 50-ml. volumetric flask. Add about 30 ml. of benzene, and when solution is effected add benzene to volume, then mix well. Transfer 5.0 ml. of the solution to a 100-ml. volumetric flask, add benzene to volume, and mix well.

Standard o-Nitroaniline Solution—Pipet exactly 10 ml. of *Stock o-Nitroaniline Solution* into a 100-ml. volumetric flask, add benzene to volume, and mix well.

Procedure—Weigh quickly about 2 Gm. of alumina to within ±5 mg. into a dry, glass-stoppered cylinder or test tube. Add exactly 20 ml. of *Stock o-Nitroaniline Solution*, shake vigorously for 3 minutes, and allow to settle. Transfer exactly 20 ml. of the clear, supernatant liquid to a 100-ml. volumetric flask, add benzene to volume, and mix well. Measure the absorbance of this solution and of the *Standard o-Nitroaniline Solution* at 395 mμ in a suitable electrophotometer, using benzene as a blank. Calculate the quantity, in mg., of *o*-nitroaniline adsorbed by the formula $1 - (B + A)$, in which A is the absorbance of the *Standard o-Nitroaniline Solution* and B is the absorbance of the solution treated with alumina. Not less than 0.3 mg. of *o*-nitroaniline is adsorbed.

pH—To 5 Gm. in a glass-stoppered, 125-ml. flask add 50 ml. of water, and shake well for 5 minutes. Allow to settle, decant the supernatant liquid, and determine its pH, preferably potentiometrically: the pH is between 3.0 and 5.0.

Loss on drying—Dry about 1 Gm., accurately weighed, at 110° for 3 hours: it loses not more than 5 per cent of its weight.

Ion-exchange Resin—Add the following to page 763:

Ion-exchange Resin*—An intimate mixture of 4 parts of a strongly acidic cation exchanger in the hydrogen form (produced by sulfonation of a styrene-divinylbenzene co-polymer, representing 8 to 10 per cent divinylbenzene) and 6 parts of a strongly basic anion exchanger in the hydroxyl form (produced by amination with trimethylamine of a chloromethylated styrene-divinylbenzene co-polymer, representing 3 to 5 per cent divinylbenzene).

* A suitable resin is that known as "Amberlite MB-1," produced by Rohm and Haas Co., Philadelphia, Pa., and available in small lots from certain laboratory supply firms.

ANEMIAS the and their treatment*

By John B. Jewell, M. D.†

ANEMIA is defined by Whitby and Britten "as a state in which the quantity or the quality of the circulating red cells is reduced below the normal level." If the normal life cycle of an erythrocyte or red blood cell is taken to be approximately 100 days then it is obvious that to maintain normal blood levels it is necessary that 1% of the erythrocytes be replaced by fully matured and fully hemoglobinized red cells each day. Accordingly, then, anemia will occur if (1) red cell production is qualitatively or quantitatively deficient or (2) blood loss or blood destruction occurs more rapidly than new cells are produced to make good the loss.

CLASSIFICATION OF ANEMIAS

The classification of anemias of a bygone day was in terms of its being *secondary* to some recognizable cause or *primary* which was merely a synonym for unexplained. While it is still not possible to categorize all anemias according to cause and while a classification still remains labelled "anemias of unknown cause" the number of cases which is relegated to this category becomes progressively smaller as hematologic knowledge increases.

On this basis then, and remembering that the primary cause of anemia may be impaired production of blood cells or increased loss of blood cells, anemias may be classified into the following categories:

1. *Dyshemopoietic anemias*—as the name implies these are anemias resulting from inefficient production of blood cells.
2. *Hemolytic anemias*—due to excessive destruction of erythrocytes intravascularly.
3. *Hemorrhagic anemias*—due to extravascular blood loss by bleeding.
4. *Anemias of unknown cause.*

DYSHEMOPOIETIC ANEMIAS

A normal production of erythrocytes implies a normally functioning bone marrow, receiving an adequate nutrition both for its own respiration and for utilization in the development of adequate numbers of red blood cells, and the availability of these cells to the blood stream. To use an everyday analogy one could regard the bone marrow as production equipment which requires power to operate it, raw materials to convert to the finished product, and an adequate distribution system to ensure delivery of the products of its manufacture.

In the anemia picture the most likely breakdown in this normally smoothly functioning system, is in terms of the supply of essential materials. Hence, dyshemopoiesis can be considered under three headings:

1. Factors necessary to hemopoiesis.
2. Causes of deficiency in factors necessary to hemopoiesis.
3. Failure of utilization of factors essential to hemopoiesis.

The Nutritional Factors Essential for Hemopoiesis

Materials essential to normal hemopoiesis include iron, traces of copper or other metals, the hemopoietic principle also known as the extrinsic factor of Castle, antipernicious anemia principle, erythrocyte maturation factor which within recent years was identified as vitamin B_{12}, pigments, vitamins, internal secretions, and first class proteins. Inadequacies in respect to any of these essentials may lead to deficiencies in size, color, quality, or form of the resulting erythrocytes. The stage of blood formation at which arrest or abnormality occurs frequently makes it possible

TABLE I—CLASSIFICATION OF ANEMIAS ACCORDING TO CAUSE

A.	**Dyshemopoietic**	
	1. Due to deficiency	a. of iron b. of hemopoietic principle c. of vitamin C d. of thyroxin
	2. Due to toxins—interfere with hemoglobin synthesis	
	3. Due to metabolic changes—as in leukemia	
	4. Due to aplasia	a. primary aplasia b. secondary aplasia
B.	**Hemolytic**	
	1. Infective—as in malaria	
	2. Toxic—as in lead poisoning	
	3. Intrinsic—as in sickle cell anemia	
C.	**Hemorrhagic**	
	1. Acute	
	2. Chronic	
	3. Hemophilia	
	4. Thrombocytopenia purpura	

* Presented at the Twelfth Annual Seminar Lectures for Pharmacists, sponsored by the College of Pharmacy, Rutgers, the State University of N.J., Feb. 29, 1956.

† Vice President and Medical Director, Ayerst Laboratories, New York, N. Y.

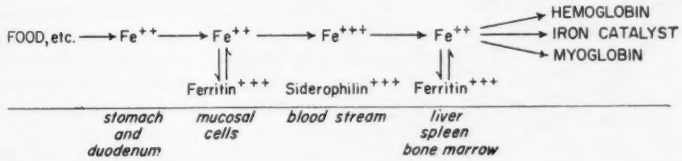
histologically to diagnose the nature of the anemias and point up the correct course of therapy.

Let us now examine a little more closely the individual factors essential to normal hemopoiesis.

Iron Requirements and Iron Metabolism—Since circulating iron is always bound to protein, excretion is negligible, and iron balance is maintained in accordance with the need rather than the frequently observed prodigal system of absorbing prodigiously and excreting the excess. Many tests have been devised which have proved this fact to the full. One of the most interesting and most conclusive is the comparative absorption of radioactive iron by normal, by polycythemic, and by anemic patients. Normal people absorb but a trace of the iron, polycythemic patients (too many blood cells) absorb practically none, while patients with iron deficiency anemia will have a tenfold increase in their absorption.

Iron absorption, it should be made clear, is not entirely a factor of hemoglobin levels, but the stage of repletion or depletion of iron storage depots in liver, spleen, and bone marrow has a very important bearing.

The following chart provides an outline of iron metabolism reduced to its bare essentials:



Stomach and Duodenum—Acidity of the stomach plays an important role in iron metabolism.

1. An acid pH converts colloidal iron of food into dispersed ferric ions.
2. At acid pH certain substances in food act to reduce ferric ions to ferrous form. These substances include ascorbic acid, cysteine, or sulfhydryl containing compounds, all of which at pH 5 will cause a reduction of ferric ions. While gastric acidity undoubtedly exerts a significant effect there must be other contributory factors since not all patients with achlorhydria become iron deficient nor do all iron-deficient patients have achlorhydria. Hence, achlorhydria alone will rarely lead to iron deficiency unless other factors intervene either to increase the requirement or decrease the availability of iron.

Iron absorption occurs primarily in the duodenum but also to a certain extent in the stomach and jejunum. Just below the pylorus there is a most active region of absorptive surface where the pH is approximately 5.

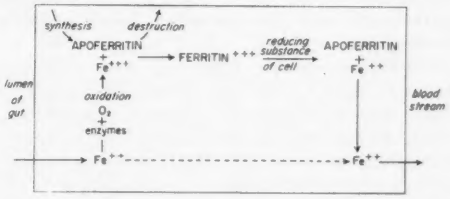
Regulation of Absorption—The body observes one of two rules in the absorption of elements and of vitamins:

1. As with sodium, potassium, vitamin C or vitamin B complex practically all of the available material is absorbed and any excess over body requirements is excreted, or
2. The body may develop a mechanism to regulate the amount to be absorbed.

The latter system of regulated absorption is called into play in connection with iron absorption. There are two features of the mucosal cells' system of iron absorption:

1. Mucosa acts on a routine schedule of absorption at a relatively steady rate.
2. In the presence of anemia the activity of the mucosal cells is markedly enhanced.

The following chart will demonstrate the mucosal cell activity:



Mucosal cells provide a one-way transfer of ferrous iron and once iron gets into the system it cannot get out, aside from hemorrhage and possibly as much as 1 mg. daily from sloughing of cells in the gastrointestinal tract.

Under conditions of normal physiology there is a storage of ferritin in the mucosal cells as well as in the iron storage depots in liver, spleen, and bone marrow, and the presence of this ferric iron-containing protein complex in the mucosal cells operates as a mucosal block to the absorption of additional iron.

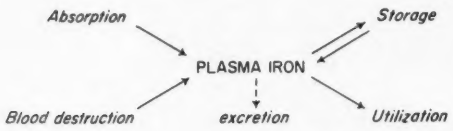
Plasma Iron—Iron is transported in the blood in combination with globulin as ferric containing siderophilin. Normally blood serum is only one third saturated, the concentration being about 100 gamma per cent as against a saturation percentage of 300 gamma. Intravenous injection of iron may bring about saturation but the serum iron level rapidly falls as the iron is removed from the blood stream.

Serum iron normally reflects the level of iron available for hemoglobin synthesis:

1. Serum iron will be low in nutritional anemia because too little iron is being absorbed by the mucosal cells.
2. Serum iron will be high when hemoglobin synthesis is depressed in deficiency anemias such as pernicious anemia.
3. In chronic infections protein synthesis in general is depressed and serum iron level is low because iron is being swept into depots without utilization.

Serum iron is a passive substance which does not appreciably influence the movement of iron from the mucosal cells into the blood stream.

Plasma iron is the resultant of a number of factors:



Storage Iron—Probably 15% of the total of 4–5 Gm. of iron in the entire body is present as storage iron while about 60% is in the form of hemoglobin and the remainder unavailable for hemoglobin synthesis.

Iron Balance—It is estimated that in the absence of bleeding only about 1 mg. of iron is lost daily and accordingly the daily requirement to maintain the balance is only about 1 mg. In menstruating women an additional 20–40 mg. is lost during a menstrual period and the needs of pregnancy almost double the figure. Lactation adds the need for 1.5 mg. daily and if menstruation occurs during lactation the demand is almost as great as in pregnancy. Children during the active phases of growth also require considerably more iron than the adult.

Dyshemopoiesis from Iron Deficiency—Adequate amounts of iron are necessary for the development of fully hemoglobinized red blood corpuscles and if there be a deficiency it affects the cell at the point at which hemoglobin is being assimilated by the maturing erythrocyte. The anemia resulting from iron deficiency manifests itself in the development of relatively normal numbers of red cells but cells which are deficient in hemoglobin and therefore *hypochromic*.

Also, since the characteristic of erythrocyte maturation is that cells become progressively smaller until released from the marrow into the blood stream, the cells appearing in iron deficiency anemia are overmatured, or semisenile cells and hence smaller than normal or microcytic. Accordingly, iron deficiency anemias are frequently referred to as microcytic, hypochromic.

Other Metals Essential to Normal Hemopoiesis include the following:

Copper—The belief is that traces of copper assist in the conversion of iron into hemoglobin. Copper apparently has no effect *per se* in preventing anemia nor will it be of any value unless there is an adequate intake of iron. Furthermore, since it is freely available in a normal diet it is seldom employed therapeutically.

Cobalt—In sheep and rats, particularly, cobalt has a distinct influence on hemopoiesis. "Pine disease" of ruminants is a form of anemia attributable to a cobalt deficiency and in rats small amounts may lead to polycythemia. In recent years cobaltous chloride has been presented as an adjunct in treating the anemias of chronic disease, which are notoriously refractory to usual procedures. There is a sharp cleavage of opinion as relating to the merits and the toxicity of this use of cobalt with the editorial board of *Blood*, the journal of hematology, in a recent issue finding that its use should remain as an experimental approach, particularly since no cobalt deficiency has ever been identified in man and since its use is not unattended by danger.

The Hemopoietic Principle—In 1926 the discovery of the curative properties of raw liver in pernicious anemia by Minot and Murphy naturally suggested that raw liver must contain a blood-building substance which was lacking in pernicious anemia. This substance was named the hemopoietic principle, erythrocyte maturation factor, anti-pernicious anemia principle, etc., and within the past few years only has been identified as cyanocobalamin or vitamin B_{12}.

It is a rather heart-warming thing to realize that the dean of American hematologists, Dr. W. B. Castle of Boston, has lived to see not only the conquest of pernicious anemia but also to see definitive proof of his theory regarding the pathogenesis of pernicious anemia. Castle's theory was that in normal subjects the diet provided an extrinsic factor which, when acted upon by an intrinsic factor provided by gastric juice, produced the hemopoietic principle which in turn when absorbed from the intestine was stored in the liver and could be called upon for use by the hemopoietic system.

Since the discovery of vitamin B_{12} Castle has been called upon to make but a slight revision of his theory to conform to the facts. Rather than a chemical interaction between intrinsic and extrinsic factors to form a new compound designated the hemopoietic principle, it is believed that the intrinsic factor merely serves as a solubilizing aid to the absorption of vitamin B_{12} which is the hemopoietic principle. Hence the production of the hemopoietic principle demands a co-ordination between food intake, digestion, absorption, and storage. Castle's theory may be represented by the equation:

Extrinsic factor (Diet)	+	Intrinsic factor (Gastric juice)	=	Hemopoietic principle (Absorbed from the intestine)

Dyshemopoiesis from Lack of Hemopoietic Principle—In contradistinction to the "semisenile" cells thrown into the blood stream in iron deficiency anemia, in dyshemopoiesis from lack of erythrocyte maturation factor, immature red cells appear in the circulating blood stream and, being immature, they are inclined to be larger in size and as a result of their size usually have a normal corpuscular hemoglobin content. Since then we have primarily larger cells and since the number of cells is diminished more than the

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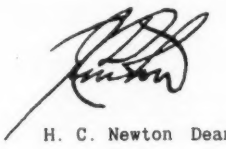
The students and members of the faculty join me in wishing each of you a full measure of good health and happiness throughout the coming years.

Cordially yours,



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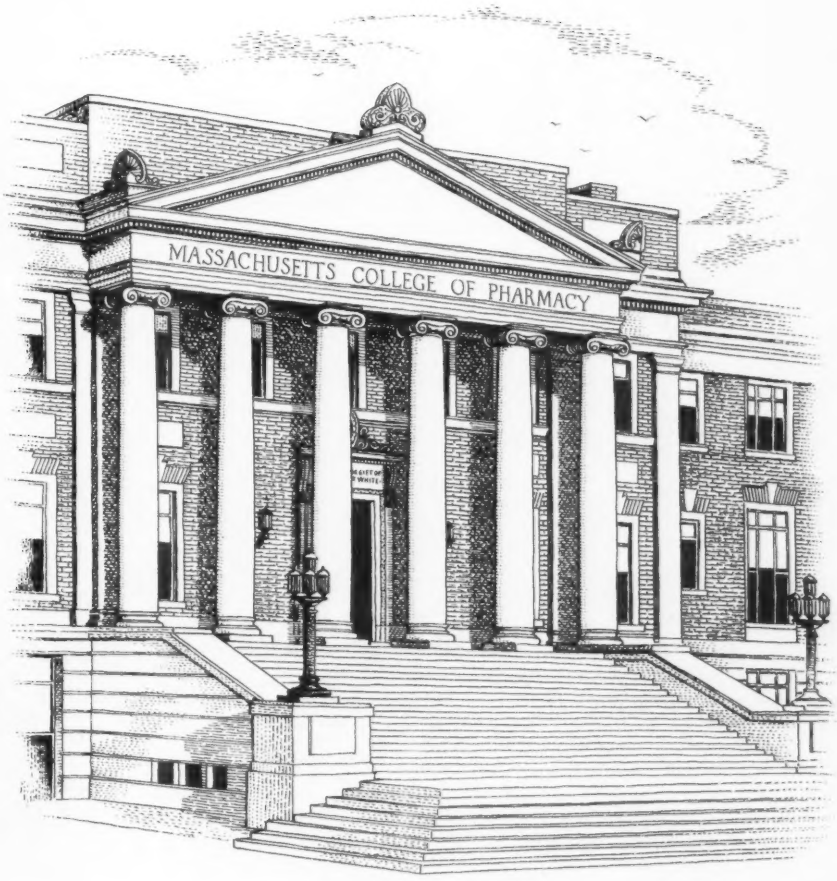

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amount of hemoglobin per cell the condition is characterized as a macrocytic, hyperchromic anemia.

Vitamins play important roles in the anemias.

Vitamin B Complex—Since members of the vitamin B complex are involved in the intermediary metabolism of all the tissue systems of the body, vitamin B deficiency will lead to anemia. Folic acid at one time was believed to be the antipernicious anemia principle and when, after a short period of comparatively widespread use, it was found that pernicious anemia patients receiving folic acid as total therapy developed neurological lesions the pendulum swung to the extreme right with a pronouncement of the *New England Journal of Medicine* that folic acid not only did not protect against combined degeneration but actually caused it. This attitude was subsequently altered and folic acid has assumed a position somewhere about midway between the enthusiasm of 1948 and the castigation of 1949.

Vitamin C—For many years it has been an observation that in scorbutic patients a profound anemia would develop which was entirely refractory to all hemopoietic agents until ascorbic acid was added to the regimen. An iron deficiency anemia occurring in scurvy will not respond even to intravenous iron in the absence of ascorbic acid while an improvement in the anemia could be brought about by vitamin C alone without the addition of iron preparations.

In recent years much attention has been directed to the role of vitamin C in hemopoiesis and it now appears that it has a twofold action:

1. Due to its acid nature vitamin C contributes to the lower pH in the most absorptive area of the duodenum.
2. Due to its high activity as a reducing agent vitamin C enhances the conversion of ferric to ferrous iron in the stomach and its absorption by the mucosal cells of the duodenum.

Possibly also due to its ability to increase reduction potential of the cell it may expedite liberation of iron from ferritin stored in mucosal cells and in storage depots as well as to enhance its availability to hemoglobin synthesis from siderophilin in the blood stream. These aspects are under intensive study at the present time.

Internal Secretions may be important in the treatment of anemia. For example, in thyroid deficiency associated with anemia, thyroxin is known to be essential for the cure of the anemia as well as the thyroid deficiency.

Protein Requirements in Anemia—In common with all other anabolic or "building-up" phases of human metabolism a good intake of protein of high biological value is essential. Particularly has it been shown that there is a definite correlation between macrocytic anemia in pregnant women and an inadequate intake of protein.

Causes of Deficiency in Factors Essential for Erythropoiesis

The factors essential for erythropoiesis have been considered and it goes without saying that a constant and normal activity by the bone marrow is also required. But a number of factors may be responsible for a deficiency of erythropoietic substances. A few of these include Absorption, Transport, Excretion, Storage, and Endocrine Deficiency, as well as the following:

Food Intake—Anemias rarely result solely from a deficient food intake but when they do, may very well be tied to economic considerations.

Digestion—Achlorhydria is a common finding in the aged. Whether the achlorhydria of pernicious anemia is primary or secondary to the anemia is not really known.

Intrinsic Factor—While the glands responsible for the secretion of intrinsic factor vary from species to species in man, glands of the fundus and to a lesser extent, of the pylorus are responsible.

Failure to Utilize Factors Essential for Hemopoiesis—Anemia of sepsis is the commonest example in this category. The fever component is particularly important, is apparently due to interference with bone marrow metabolism, and will not respond until removal of the basic cause. Even intravenous iron will not be utilized in such cases.

HEMORRHAGIC ANEMIAS

Hemorrhage producing anemia may be acute or chronic and the symptoms, signs, and mechanism of recovery all vary depending upon the type.

A single acute loss of 500 cc. of blood in a normal healthy individual will usually be entirely restored in one week and will usually lead to few if any symptoms. If the loss be 700 cc., definite symptoms of weakness and dizziness are usually experienced, and an acute loss of 1500–2000 cc. may well be fatal. Such a loss spread over a period of 24 hours or more is much less likely to be fatal.

Mechanism of Recovery

There are two major aspects of the recovery process functioning in hemorrhagic anemias:

1. Restoration of blood volume occurs from tissue fluids in a few hours unless the patient has also become dehydrated.
2. The anoxemia induced by the reduction in the number of red blood cells in the circulation leads to a stimulation of the bone marrow. The marrow in turn becomes hyperplastic and speeds up the development of red blood cells so that both blood count and hemoglobin levels are restored to normal.

Whether the hemorrhage is acute or chronic the obvious approach to therapy is to find the source of blood loss, arrest the hemorrhage, and correct the anemia which has resulted.

Fundamentals of FIRST AID*

by John Henderson, M.D.†

You hear a blaring horn . . . a screech of tires . . . a crash. A man yells out in pain. Just a few yards away you can see him lying on the road, bleeding. Do you know what to do?

Or suppose that in your home you see a child fall down the stairs . . . or hear him cry out after burning his hand on the stove . . . or watch him press his stomach in agony as you smell the acrid odor of poison. Can you help him?

First aid, as defined in *The Complete Book of First Aid*, is "the art of giving quick and correct assistance to those who are sick or hurt, until medical aid comes." Boy scouts can do it, so can policemen, firemen, soldiers, and millions of other people who have taken the time to learn how.

Basic Principles of First Aid

There are a few basic principles and techniques to know. Once learned, you will be well prepared to do the right thing—and do it quickly—if and when the need arises.

Bleeding

In the case of accidents in which the victim is bleeding badly—a time when first aid is urgently needed—there are three steps to follow: *stop the bleeding, protect the wound,* and *treat for shock.*

In most cases, the bleeding can be stopped by pressing a wad of sterile gauze on the wound (any clean fabric will do if gauze is not available) and holding it there with moderate pressure. If the wound is in an arm or leg and the bone is not broken, have the patient lie down and elevate the limb as high as possible. In that way blood will not flow into the limb so fast and bleeding will be slowed.

If after a few minutes of direct pressure the bleeding is still severe, apply a tourniquet. Any flat material like a belt or stocking will make a good tourniquet, but do not use anything as sharp as a rope or wire. Apply the tourniquet an inch or two above the wound. If the wound is below the knee or elbow, place the tourniquet above these joints. The tourniquet should be tightened just enough to control bleeding and it should *not* be removed or loosened until a medical man is on hand. Whether or not a tourniquet is used, the gauze or fabric with which you apply direct pressure should be tied to the wound as a bandage.

Shock

Shock is a very dangerous condition of suddenly lowered blood pressure throughout the body. The more seriously someone is injured, the more likely he is to develop shock. A person in shock usually shivers and appears nervous. He may become very pale, perspire heavily, even faint.

To prevent or treat shock, make the patient comfortable and keep him warm. Loosen his belt and clothing, be very gentle, and do not move him if it can be avoided. Lower his head and shoulders, elevate his legs to increase the flow of blood to the brain. If he is unconscious, place him face down with his head turned to one side. Cover him with a blanket, a coat—anything—and place something under him to protect him from the coldness of the ground or floor.

Fractures

A fracture, medical term for broken bone, is a "compound fracture" if a piece of bone protrudes through the skin. If not, it is a "simple fracture."

While a compound fracture is easy to recognize from the break in the skin, a simple fracture is more difficult to find. Some signs of a simple fracture are pain in the area of the break, sometimes a grating sensation, and tenderness to the touch. There may be an obvious bend or deformity in the case of a fractured limb, and the patient may be unable to move the injured part. Frequently there is a swelling or discoloration.

A fracture may or may not have all these signs, but if you are not sure, assume that a fracture exists.

A compound fracture should be covered by a sterile dressing like any other wound. If the

* Adapted and condensed from *The Complete Book of First Aid*, by John Henderson, M.D., published by Bantam Books, Inc. Price 50 cents in the pocket-size edition.

† Medical Director, Johnson & Johnson.

bleeding is great, it should be stopped as described above. A good splint will greatly reduce the pain of a fracture and will help to prevent or reduce shock. Also, it prevents the jagged edges of the broken bone from tearing blood vessels or nerves. A splint is in order whether the fracture is simple or compound. See Fig. 1.

In the case of a bad fall—down a flight of stairs, for example—there is real danger that the patient may have a broken back or a broken neck. It is *essential* that the patient not be moved or encouraged to move until medical help arrives.

Burns

First degree burns are those which affect only the epidermis—the top layer of skin. If blisters form, it is a second degree burn, not only has the epidermis been burned, but the true skin as well. A third degree burn is one which completely burns away both the epidermis and true skin, uncovering the flesh. See Fig. 2.

Contrary to popular belief, coating a burn with butter is *not* a good idea. Instead, gently cleanse the area with a sterile gauze pad. Then coat the area with petroleum jelly and cover with a sterile bandage.

Third degree burns—and deep second degree burns, too—create real threats of infection and shock. Medical aid should be sought at once. No attempt should be made to treat the burned areas other than to remove obvious foreign matter, such as burned clothing, and to cover with a loose clean dressing.

The patient should drink as much water as he can hold and should be given either aspirin or a sleeping pill. Be sure to tell the doctor what medication—and how much—was given. Rush the patient to a hospital in a reclining position, feet raised. Keep him warm and give him water en route.

It is important to remember that if clothing sticks to a burn it should not be pulled off. Cut around it and cover with a dry sterile dressing. Since swelling may be severe, remove all rings, bracelets, and similar articles immediately.

Poison

Hundreds of lives would be saved each year if people would only *keep poisons out of the medicine chest and out of the reach of children.*

Many substances—some insecticides, plant sprays and cleaning fluids, for example—can be absorbed through the skin in poisonous quantities. The best first aid is prevention but, failing that, the skin should be washed thoroughly and medical aid sought immediately.

By far the most common poison route is by mouth. If the poison is a corrosive one—you can usually tell by the burned appearance of the patient's mouth or lips—try to find out if the poison is an acid or an alkali. Cleaning solutions are usually acids, while alkalies include such things as lye, lime and ammonia.

If the poison is an acid, give the patient 2 to 4 ounces of milk of magnesia. If an alkali, give him orange juice or lemon juice. Follow the milk of magnesia or juice with several glasses of milk, flour in water will do if no milk is available. Then rush him to a doctor.

If the poison is noncorrosive, make the patient vomit by giving him several glasses of soapy water. When the stomach has been emptied, give the patient the "universal antidote": 2 parts activated charcoal; 1 part magnesium oxide; 1 part tannic acid. Mix two tablespoonfuls of this in a glass of water, allow it to remain in the stomach for two or three minutes, then follow with another dose of soapy water. Repeat this procedure several times.

Watch out for shock and treat for it if necessary (warmth, loosened clothing, reclining position, feet raised). Also be prepared to give artificial respiration if required. When the stomach has at last been emptied, give the patient hot tea or coffee if he is conscious. Be sure the stomach contents are saved for chemical analysis to determine what poison was taken.

If no universal antidote is available, follow the soapy water with quantities of tea or milk—water, if no tea or milk is at hand—then more soapy water.

Electric Shock

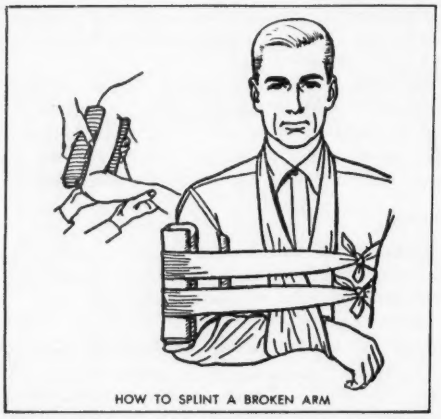
Electric shock is a frequent accident resulting from contact with a live wire. It is urgent that the patient be removed from contact with the wire as soon as possible, but if you touch him or

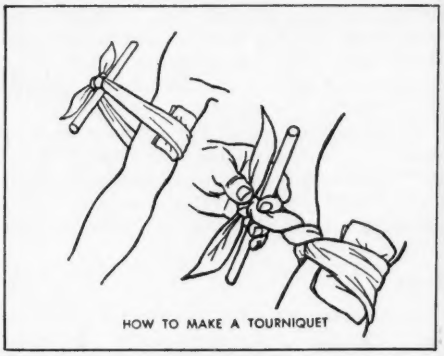
The Author

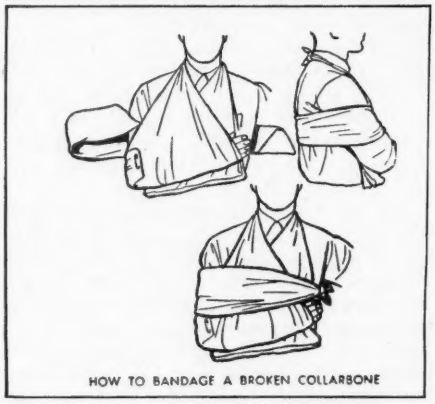
Dr. John Henderson

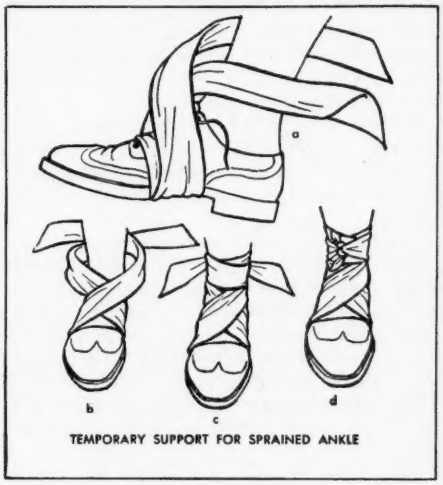
Dr. John Henderson, author of *The Complete Book of First Aid,* is one of America's foremost authorities on the subject of emergency care. A graduate of Columbia University's Medical School, Dr. Henderson is a Fellow of the American College of Surgeons and Medical Director of the world's largest manufacturer of surgical dressings and baby and allied products. Military and government officials have lauded Dr. Henderson both for his contributions to medical knowledge and his extensive public information activities.

Fig. 1—Drawings from *The Complete Book of First Aid*

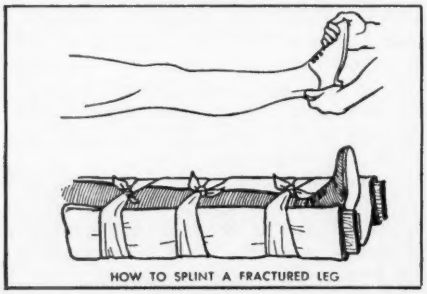

HOW TO SPLINT A BROKEN ARM

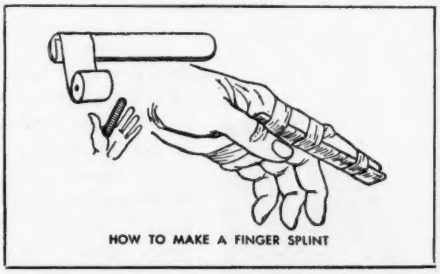

HOW TO MAKE A TOURNIQUET


HOW TO BANDAGE A BROKEN COLLARBONE



TEMPORARY SUPPORT FOR SPRAINED ANKLE


HOW TO SPLINT A FRACTURED LEG


HOW TO MAKE A FINGER SPLINT

UPPER LEFT—To splint the upper arm, pad two short wooden splints and place them on the inner and outer surfaces of the arm. Then bring the arm across the chest, and hold it there with two bandages. Suspend the forearm in a sling hung from the neck. If no splints are available, use a heavy magazine.

MIDDLE LEFT—Since splinting a broken collarbone is not practical, immobilize the arm in a sling hung from the neck. Then slip soft padding between the arm and chest, and hold the arm to the chest with a bandage.

LOWER LEFT—To splint a broken leg, pull it gently, raising it enough to slip a towel or blanket underneath. On either side of the leg, fasten padded splints which are long enough to prevent the knee from swinging. If you have no splints, wrap the leg in rolled-up newspaper to prevent the jagged edges of the broken bone from moving about.

UPPER RIGHT—To make a tourniquet, form a loose loop in such a way that when it is tightened, the flow of blood will be stopped. Insert a short stick through the loop and twist until the tourniquet is tight enough.

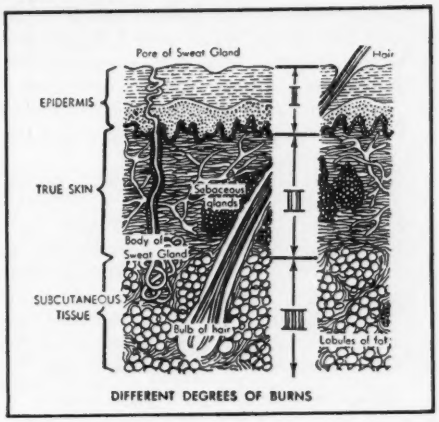
MIDDLE RIGHT—If someone with a sprained ankle *has* to walk, the "figure eight" bandage illustrated will help.

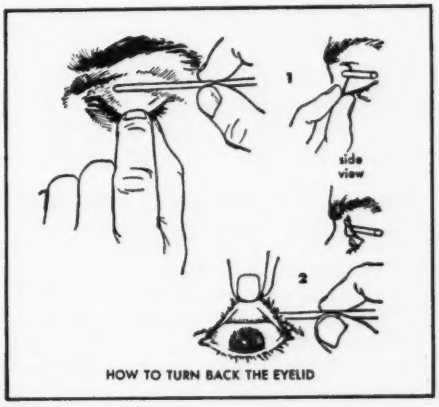
LOWER RIGHT—A tongue depressor, pen or pencil makes an excellent finger splint.

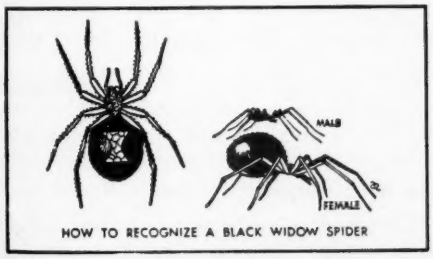
Fig. 2—Drawings from *The Complete Book of First Aid*

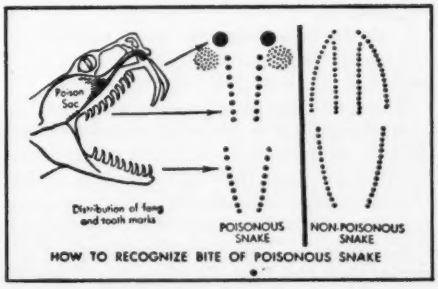
HOLGER-NIELSEN METHOD
a.) Correct position for starting the Holger-Nielsen method of artificial respiration. Insert shows correct position of hands on patient's back.
b.) Downward pressure starts compression phase and expels bad air from lung.
c.) End compression phase and begin expansion phase by grasping patient's elbows preparatory to pulling forward and upward.
d.) The elbows are pulled firmly forward and upward to fully expand chest and pull good air into the lungs. Expansion phase ends by lowering patient's arms and returning to position as shown in (a).

Most people associate artificial respiration only with drownings, but it is also used for gas poisoning, electric shock, and as the first form of assistance to any patient who has stopped breathing. Before beginning artificial respiration, remove from the patient's mouth all foreign bodies such as false teeth, tobacco, and gum.









LOWER LEFT—The black widow spider is easy to recognize from the hourglass marking on its back. Only the female has this design, but not many adult males are alive—the female eats the male after mating.

UPPER RIGHT—First degree burns (I) affect only the epidermis. Second degree burns (II) go through the epidermis and affect the true skin. Third degree burns (III) involve the entire skin thickness and the area below the skin as well.

MIDDLE RIGHT—If frequent blinking doesn't remove a foreign body from the eye, try drawing the upper lid over the lower lid, causing tears that may wash away the speck. If this doesn't work, grasp the eyelashes gently and turn the lid back over a cotton swab or pencil while the patient looks down. If you can see the speck, wipe it off gently with a wisp of absorbent cotton. Unless the particle is on the white of the eye, let a doctor remove it.

LOWER RIGHT—The two fang marks (heavy black dots) distinguish the poisonous snake from the non-poisonous one. Since most snake bites occur on the legs, the danger can be minimized by wearing proper boots in snake country.

the wire with bare hands, you will get a severe shock, too.

Instead, turn off the current swtich if it is nearby, but do not waste time looking for it. If the switch is not handy, whack the wire away with a dry wooden pole. Or, if you cannot do this, wrap a loop of dry cloth or rope around some part of the victim—perhaps his leg—and drag him off the wire.

Start artificial respiration (see Fig. 2) immediately, and keep it up for at least two hours or until the patient is breathing on his own.

Always remember that in serious cases, the first aid you render is only an interim effort, medical aid should be sought as soon as possible.

If you have read this article carefully, you now know many of the most important first aid principles that may one day save someone's life.

What to Know about Medicines[1]

How well do you store your drugs? Do you keep them in a place that preserves their potency and at the same time makes them available for quick and easy reach when you need them in a hurry, but out of your child's reach? Or do you keep them in the bathroom cluttered and clustered with innumerable other items such as shaving items, colognes, deodorants, shampoos, etc., that make them hard to find and also hard to keep?

Actually, the bathroom is not always the best place for drugs. Drugs of all kinds should be kept in a dry, cool spot. Moisture and heat in the bathroom cause labels to blur, gelatin capsules to stick together, effervescent tablets to lose their fizz, cough syrups with sugar in them to ferment, peroxide bottles to explode. Store them. You will be increasing the usefulness and life of all your drugs if you devise a spot just outside the bathroom for their storage. Make the shelves high enough so they are out of the children's reach.

It is always a good idea to check with your pharmacist on where he would suggest storing medicines, and how long they may be kept.

Throw out any drug product which seems to have changed its form, odor, or color. Any of these changes indicate spoilage or decomposition. Aspirin, for example, may decompose when kept too long, as indicated by a strong, vinegar-like odor. Some drugs gain or lose potency when kept too long. Iodine and medicines with an alcohol base gain strength with age and should be replaced frequently.

Throw away all broken tablets. You cannot take an accurate dosage by piecing the parts together. Dispose of all prescription drugs which have served their purpose. Never save them to use again after a self-diagnosis which seems to be the same as the one for which they were originally prescribed. Label your family's medicines to assure identification and include date of purchase. Cover all labels with cellophane to avoid blurring. Place all poison such as iodine, sleeping tablets, opiates, drugs with mercury content, and other potentially dangerous drugs, together in a box marked "poison" and place well out of children's reach.

Keep a closed container marked "emergency equipment" on the shelf for first-aid supplies. Keep in it sterile cotton gauze and ready-to-use adhesive bandages and other first-aid supplies. Handle these things with exacting care because they will no longer be sterile when paper coverings are broken. Check this box regularly to be sure you have adequate supplies on hand, for whenever you have need of these particular supplies you will need them immediately. It is always a good idea to check with your pharmacist on what and how much of each item to keep in this box. And it is also a good idea to have a manual like *The Complete Book of First Aid* on hand for ready reference.

First Aid to a Happy Vacation

You will feel more assured—and perhaps return from your vacation in better condition—if you know these principles of first aid.

Motion Sickness

All people, especially children, are susceptible to motion sickness—the feeling of nausea you get if jostled about too much in a vehicle or on a boat. The more you can reduce the jostling, the less likely you are to become ill. A soft seat, for example, is better than a hard one. In a car, try to avoid bumpy roads and sudden starts and stops.

Fresh air helps a lot. So does fixing your eyes firmly on a given spot, perhaps the road ahead or the land on shore. Overindulgence in alcohol makes motion sickness more likely. As for food, the best idea is to have a light meal two or three hours before leaving.

New and better remedies for motion sickness are being developed all the time. If you are planning to travel by boat or plane, get your doctor's advice as to the remedy he recommends.

Heat and Sun Injuries

Severe sunburn should be treated with a good burn ointment, like any other burn. Suntan lotion is good before exposure to the sun but does little good afterwards. If no burn ointment is available, use baby oil or petroleum jelly. Aspirin will relieve the general discomfort, and the patient should drink plenty of water.

Heat cramps result when the body loses too much salt through perspiration. Treatment: coated salt tablets. If salt tablets are not available, a teaspoonful of salt in a pint of water will do.

[1] This article is written in a form and style which pharmacists can use readily in passing important first aid information along to their customers in a concise, easily understood manner. Reprints for promotional purposes may be ordered at these rates: $8.25 for 50; $9.25 for 100; $16.25 for 500; $25.00 for 1000.

Heat exhaustion is characterized by a cold and clammy skin, weak pulse, and shallow breathing. The onset is marked by dizziness, a feeling of fatigue, sometimes even unconsciousness. Treatment: Remove the patient to a cool place, lay him down with his feet raised, and loosen his clothing. Fan him and place cool, wet cloths on his forehead and wrists. Upon recovery, give him cool, sweetened drinks—preferably coffee or tea.

Sunstroke is far more serious than heat exhaustion, and medical aid should be sought immediately. The skin becomes dry and very hot, and the patient's temperature may rise to 106° or more. Treatment: Place the patient in a tub of cold water—with cracked ice, if possible. When his temperature goes down to near normal, remove him from the tub and wrap him in sheets soaked in cold water. Fan him. If his temperature rises again, put him back in the tub.

Wounds

Scrapes and minor cuts should be carefully cleansed of every bit of foreign matter, else infection may result. If the wound is not deep, the foreign material often can be washed away with a solution of hydrogen peroxide, followed by washing with soap and water. But if you cannot cleanse the wound, get medical aid. Once the wound is clean, it should be coated with an antiseptic and covered with a bandage.

Deep cuts and punctures definitely require medical attention to be sure the wound is properly cleansed. Unless a blood vessel has been cut, you can stop the bleeding by pressing a wad of sterile gauze on the wound. If this direct pressure does not stop the bleeding, apply a tourniquet until medical aid is available.

Bites

Animal bites should be scrubbed thoroughly with soap and water, then rinsed with very warm water. Apply an antiseptic, bandage the wound, keep the bitten part at rest, and see a doctor immediately. Bites by dogs, cats, foxes, and several other animals may lead to rabies, and so a biting animal should be captured, if possible, for observation to see if it is rabid. If you cannot capture the animal, kill it so it will be available for study.

Snake bites, if the snake is poisonous, leave two puncture wounds made by the venomous fangs (see Fig. 2). *Speedy* first aid is essential. Tie a narrow bandage or shoelace just above the bite, and make it just tight enough to stop the flow of blood back to the heart. Next, make cross incisions a good quarter of an inch deep over each fang mark, using a knife or razor blade that has been sterilized in a flame, then suck out the venom. Get medical aid immediately. And don't give the patient any stimulant—the less his activity the better.

Insect bites should be treated by removing the stinger, if present, then applying a solution of Epsom salts to draw out the poison and reduce the swelling. A black widow spider bite produces severe abdominal pain. Treat as you would for snake bite (see Fig. 2).

Poison Ivy, Oak and Sumac

Everyone should learn to recognize these plants. Rembember that "natural" immunity often disappears. Immediately after contact, the skin should be scrubbed thoroughly with a strong soap, allowing the soap to remain on the skin for several minutes after the cleansing. Once the skin is irritated by poisonous plants, avoid water, oily ointments or alcoholic solutions. Calamine lotion will relieve the itching. Severe cases of plant poisoning require medical attention.

U.S. Poison Control Centers

The following list of Poison Control Centers provides the addresses of toxicologists from whom information may be quickly obtained in the event of accidental, suicidal, or homicidal poisoning. These centers, being established under the sponsorship of the American Academy of Pediatrics, the American Medical Association, and the American Public Health Association, are growing in number, and files of information on poisons are being constantly enlarged.

Boston, Mass., c/o Lendon Snedeker, M.D., Executive Secretary, Boston Committee for the Control of Accidental Poisoning in Children, 300 Longwood Ave., Boston 15, Mass.

Chicago, Ill., c/o Joseph Christian, M.D., Chairman, Department of Pediatrics, Stritch School of Medicine, 706 S. Wolcott St., Chicago, Ill.

Cincinnati, Ohio, c/o Jules I. Klein, M.D., 3530 Reading Rd., Cincinnati, Ohio.

Dallas, Tex., c/o Kathryn Willis, M.D., Chief Resident, Southwestern Medical School, University of Texas, 2211 Oak Lawn Ave., Dallas, Tex.

Durham, N. C., c/o Jay Arena, M.D., Duke Hospital, Durham, N.C.

Grand Rapids, Mich., c/o Mark W. Dick, M.D., 1508 The McKay Tower, Grand Rapids 2, Mich.

Harrisburg, Pa., c/o Rosemarie J. Tursky, Child Health Committee, Dauphin County Medical Society, 1000 N. 2nd St., Harrisburg, Pa.

Indianapolis, Ind., c/o Irving Rosenbaum, M.D., 401 E. 34th St., Indianapolis, Ind.

Louisville, Ky., c/o Wm. Curtis Adams, M.D., Asst. Prof. of Child Health, School of Medicine, University of Louisville, Louisville 2, Ky.

Newark N. J., c/o William H. Fost, M.D., Babies Hospital, 15 Roseville Ave., Newark, N.J.

New York, N. Y., c/o Harold Jacobziner, M.D., Asst. Commissioner, New York City Department of Health, 125 Worth St., New York 13, N.Y.

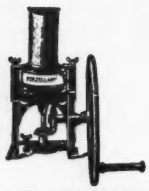
Phoenix, Ariz., c/o Paul B. Jarrett, M.D., Chairman, Committee on Safety, Maricopa County Medical Society, 2025 N. Central Ave., Phoenix, Ariz.

Springfield, Ill., c/o J. Keller Mack, M.D., St. Johns Hospital, Springfield, Ill.

Washington, D. C., c/o Allan B. Coleman, M.D., 1433 Whittier St., N.W., Washington 12, D.C.

Tools of the Apothecary

9. THE DRUG MILL



1. Zemsch ointment mill with porcelain grinding surfaces. German make, 1895.

2. Hance Bros. & White Conical Plate Drug Mill. Described to the A.PH.A., 1872.

*By George Griffenhagen**

Until the middle of the 18th century the mortar and pestle was the most commonly employed implement for reducing drugs to powder. The earliest mills were simply modifications of the mortar and pestle. Usher reviews various types of mills employed from 150 B.C. to 1500 A.D., including the cattle- and horse-driven mill, the windmill and the water-wheel mill. However, there is no indication that any of these early mills were widely used for grinding or milling drugs.

In England the horse-mill was adapted to drug milling by the mid-18th century. In 1758 Robert Dossie reported as follows:

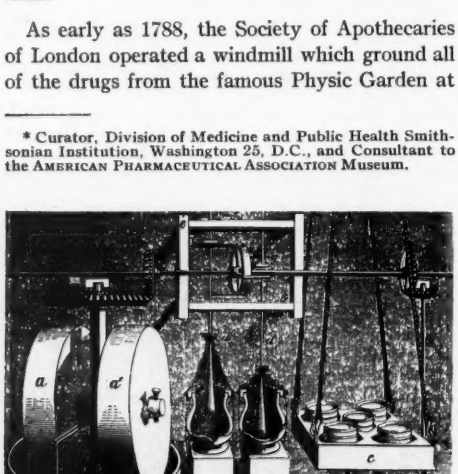
"... since the late attempts made by particular persons, to gain advantages by the preparation of the medicines of great consumption, at very low rates, by more expedient means, a method has been practiced of performing this operation (levigating) with much less labour, and consequently greater profit, than the usual way (with mortar and pestle). This has been done by the introduction of the horse-mill and roller, which has been applied for this purpose. . .by sugar refiners and the manufacturers of snuff."

As early as 1788, the Society of Apothecaries of London operated a windmill which ground all of the drugs from the famous Physic Garden at Chelsea. The pioneer drug mill in this country was established in 1812 by Charles Hagner in Philadelphia. Using his father's water-mill at "the Fall of Schuykill," with a 4-foot pair of millstones, Hagner commenced drug milling by grinding 6,000 pounds of cream of tartar for a Philadelphia druggist. However, when Hagner delivered the cream of tartar, the druggist refused to believe it, claiming that the cream of tartar was ruined. A meeting of leading Philadelphia druggists tested the cream of tartar and found it to be "perfectly good, unusually white and finer than any had ever seen before." News of the event spread rapidly to New York, Boston, and other cities, and drug mills were established in many parts of the country.

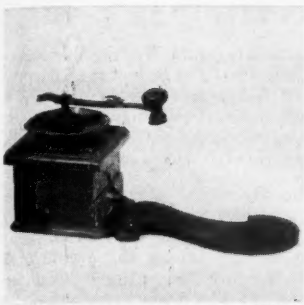
In 1849 Procter reported that "the greater part of the drugs which are used in powder are reduced to that state by persons who make it their business, and who are called 'drug-grinders.'" Unfortunately, however, the unscrupulous did not hesitate to adulterate powdered drugs when the loss in powdering was too great, or when the motive for profit too keen. This situation was recognized early, as is shown by an advertisement of one Wm. Dunlop, Druggist and Owner of the New York Drug Mills. Dunlop advertised in 1826–27: 'The subscriber will enter into bonds to forfeit ONE THOUSAND DOLLARS if it can be proved that any article has been adulterated whilst in his possession.'"

To those who felt that they could only be answerable to the purity of drugs which were ground on their own premises, the contusion mortar remained an essential tool in the 19th century apothecary shop; others adopted spice mills for grinding small quantities of drugs. There are even indications that specially designed drug mills were available by the late 18th century. For example, "a drug mill" was recorded as received by J. B. Cutting, Apothecary General of the Continental Army, in 1778. A European drug mill, dated 1791, with an elongated base piece for holding the mill steady by sitting on it while in use is shown in Fig. 4. A coffee and spice mill once owned by General and Mrs. George

* Curator, Division of Medicine and Public Health Smithsonian Institution, Washington 25, D.C., and Consultant to the AMERICAN PHARMACEUTICAL ASSOCIATION Museum.

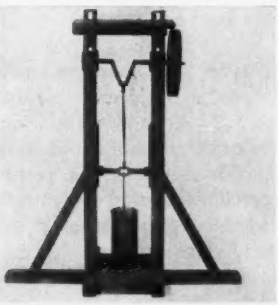


3. This "Rube Goldberg contraption" was illustrated and described in Proctor's "Practical Pharmacy" as an "apparatus for drug-grinding" which includes (aa') drug mill, (bb') stampers, and (c) the sifters.



4. European drug mill, dated 1791, has an elongated base for holding the mill steady by sitting on it. Courtesy Smithsonian Institution.

5. Enterprise Drug Mill, patented 1873, is on view in the American Pharmaceutical Association Museum at the headquarters building.



6. Mercurial ointment mill patented 1844 by James Gordon of Baltimore, Md. Original patent office model is at the Smithsonian.

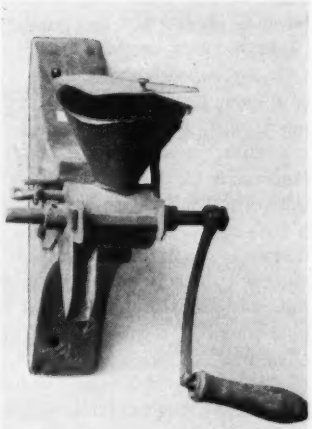
Washington is to be seen in Fig. 7; such a mill probably was also employed for grinding medicinal herbs.

It appears, however, that the portable drug mill was not a standard piece of pharmaceutical equipment until Beriah Swift in 1847 introduced his "improved portable mill, designed for the use of druggists and apothecaries in grinding drugs. . ." It consisted of two verticle grinding plates, one of which was made fast to a wooden frame, the other to a shaft to the end of which was attached a fly-wheel. See Fig. 8.

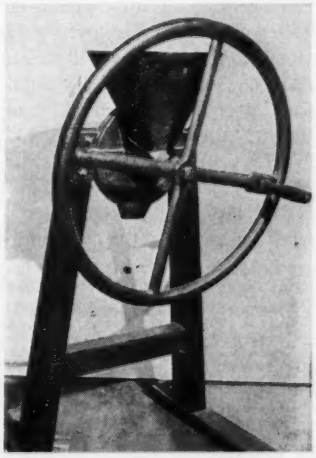
By 1875 there was considerable competition among manufacturers of drug mills superseding Swift's Old Style Mill. There was, for example, Swift's New Style Mill, made and sold by W. H. Schieffelin and Co., New York. Troemner's Mill, made by Henry Troemner of Philadelphia, was patented January 17, 1870. Spencer Thomas' Mill was made by J. M. Maris of Philadelphia. The Hance Conical Plate Drug Mill, made by Hance Bros. and White, was described to the A.PH.A. in 1872 as covering "a larger field of usefulness for druggists' and pharmacists' use than any other drug mill known" (Fig. 2). The Enterprise Drug Mill, patented October 21, 1873, was described to the A.PH.A. in 1875 as meeting all the requirements of a drug mill "more perfectly than any mill now on the market" (Fig. 5).

For those who prepared their own powders the seive was an indispensable tool. In 1657 Renodaeus reported the use of "Seives made of Horsehairs, intertexed like a web" or "often of fine linen, and oftest of silk, operculated upon a bending wood, that the Powder received in the one casket, may by cribation pass into the other without any loss." Practically every pharmaceutical inventory from the 16th through the 19th centuries includes one or more "searces" or seives. In 1856 Parrish reported that "the most permanent and desirable kind is that made of wire gauze, although hair and bolting cloth seives are somewhat less costly." Today hand seives are required equipment of 17 State Boards of Pharmacy and are available in a variety of styles, diameters, and meshes (Maris, A. H. Thomas, Machlett).

Today there are a variety of power-operated mills on the market which are suitable for drug grinding. They include the Wiley Laboratory Mill (A. H. Thomas Co.); Raymond Laboratory Mill (Combustion Engineering, Inc.); Harris Mill No. 2 (J. H. Day Co.); Model 64-B Drug Mill (F. J. Stokes Co.); and the Ross #70S Dry Mill (Charles Ross and Son). Other



7. Coffee and spice mill used by George and Martha Washington at Mt. Vernon is now in the Peter Collection, United States National Museum.



8. Portable mill designed for grinding drugs was introduced in 1847 by Beriah Swift. Courtesy Wisconsin Historical Society, located in Madison, Wisc.

Tools . . . . . *(from page 741)*

mills for large scale grinding include those made by Abbe Engineering Co., International Engineering Co., and Kent Machine Works.

For the preparation of ointments, the tile and spatula as well as the mortar and pestle have served as standard equipment through the years. However, ointment mills were offered by the early 19th century. A machine for making mercurial ointment was patented in the United States on June 5, 1844, by James Gordon of Baltimore, Md. (Fig. 6). In 1895, August Zemsch of Wiesbaden, Germany, introduced an ointment mill (Fig. 1) which was not unlike some of the hand drug mills for pulverizing powders except that the grinding surfaces were made of hard porcelain.

Today, when ointments are prepared in lots of 5 pounds or more, it is desirable to use a mechanical mixer. The ordinary type of electric mixer is suitable for small quantities; a pony mixer (Arthur Colton Co. or J. H. Day Co.), the vertical mixer (Read Standard Corp.), or the portable can mixer (Kent Machine Works) is desirable for larger quantities. A roller-type ointment mixer with porcelain or stainless steel rollers is offered in a variety of sizes by Chemipharm, and a 6-gallon Model 21-AA Mixer is offered by F. J. Stokes Corp.

The process of homogenization was first introduced by August Gaulin at the 1900 Paris Exposition, and as early as 1936 homogenizers were employed by the pharmaceutical industry. Homogenizers and colloid mills suitable for small scale work include the Gaulin Laboratory Homogenizer (Manton-Gaulin Mfg. Co.); The Tri-Homo Junior Laboratory Model 1½ (Tri-Homo Corp.); the Model J Homoloid Machine (W. J. Fitzpatrick Co.); the Model ND-1 Charlotte Colloid Mill (Chemicolloid Laboratories); and the VirTis "45" Homogenizer (VirTis Co.). For emulsification, the *American Professional Pharmacist's* hand homogenizer is one of the most efficient pieces of equipment available today to the prescription pharmacist.

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STUDENT BRANCHES

Alabama Polytechnic Institute—The October meeting featured an address on "The Role of the Pharmacist in the Field of Toxicology" presented by *Prof. George Hargreaves*, faculty member. *Samuel B. Todd* was appointed Secretary of the Branch to fill out the unexpired term of *Joseph Hicks*.

Fordham University—"The Advantages of a Strong A.PH.A." was the topic of a short talk given by *Allen Hirsch*, President of the Student Branch, at the October meeting. During the evening an Eastman Kodak Company film entitled "Counter Measures" was shown. The Branch program committee has scheduled a series of seven meetings during the college year and distributed a printed program listing speakers and topics.

George Washington University—At the October meeting *R. T. Ruckart*, Secretary of the Student Branch, gave a brief outline of the activities of the A.PH.A. during the past year in connection with barbiturate and amphetamine legislation, status of pharmacists in Selective Service and the Armed Forces, and the conversion of legend drugs to over-the-counter status. New faculty members, Student Branch members, and freshmen students were welcomed by *Dean Charles W. Bliven*.

Howard College (Ala.)—Nearly 100 enthusiastic pharmacy students attended the first Student Branch meeting of the school year on September 27.

President *Clyde King* appointed members to various Committees to carry on Branch activities for the year.

Massachusetts College of Pharmacy—*Dean Howard Newton* and Faculty Advisor *John W. Schermerhorn* welcomed students to the October meeting of the Student Branch. *George Denmark*, President of the Branch, gave a report on the A.PH.A. Convention held in Detroit last May.

New England College of Pharmacy—*Rudolphe E. Langevin*, President of the Massachusetts State Pharmaceutical Association, was guest speaker at the October meeting of the Student Branch. Mr. Langevin stressed the need for organization in the profession of pharmacy in his speech entitled "The Importance of the Pharmacist in the Health and Life of the Community."

Philadelphia Branches—During the week of October 7 *Charles C. Rabe*, Assistant to the A.PH.A. Secretary, visited and addressed meetings of the Student Branches at the **Philadelphia College of Pharmacy and Science** and **Temple University.**

University of California—*Dr. Robert P. Fischelis*, Secretary of the A.PH.A., addressed the Student Branch October 10.

University of Illinois—An orientation meeting, designed especially for freshmen, was held September 26. *Daniel Kurber*, President of the Student Branch, explained the purpose, functions, and benefits of membership in the A.PH.A. Application forms for membership in the A.PH.A. were distributed and all non-members were urged to join pharmacy's oldest professional society.

(Continued on page 743)

MEMBERSHIP RECORDS

THE ASSOCIATION EXTENDS A CORDIAL WELCOME TO THE FOLLOWING MEN AND WOMEN WHO WERE ACCEPTED FOR ACTIVE MEMBERSHIP DURING THE MONTH PRECEDING PREPARATION OF THIS ISSUE.

ALABAMA

Black, William H., Jr., Birmingham
Young, James D., Jr., Birmingham

ARIZONA

Ulrey, J. C., Flagstaff

ARKANSAS

Morgan, Gerald G., Corning

CALIFORNIA

Corea, Martha A., Oakland
Covington, Robert T., San Diego
Harlan, John C., Jr., San Diego
Lorenz, Walter K., South Gate

COLORADO

Brown, Myon L., Colorado Springs

FLORIDA

Finegan, Rena H., Miami Beach

GEORGIA

Bryant, Solon B., Columbus
Goldman, Jesse M., Atlanta

ILLINOIS

Hujar, Walter E., Chicago
Jahier, John, Chicago
Laugaud, Michael, Cicero

INDIANA

Heikowsky, Robert C., Ft. Wayne

IOWA

Van Houweling, A. M., Des Moines

LOUISIANA

Bynum, Horace C., New Orleans

MARYLAND

Fatt, Homer, Silver Spring
Lichter, George, Baltimore

MASSACHUSETTS

Nevler, Sidney E., Westboro

MICHIGAN

Klein, Stanley C., Detroit
Moss, David M., Hamtramck
Sherk, Dafoe F., Midland
Wilson, Charles H., Detroit
Wolfer, George, Detroit

MISSOURI

Daily, A. D., Kirkwood
Gilbert, S. Edward, St. Louis
Pandolfo, Mario A., St. Louis
Ross, James W., St. Louis

NEBRASKA

Ciciulla, Salvatore A., Omaha
Pedley, L. T., Minden

NEW JERSEY

Croucher, James R., Paterson
Dispensiere, Victor E., Fair Haven
Krieger, James F., West New York
Larmer, Robert, Camden

NEW YORK

Brenner, Saul, Laurelton
Rochman, Benjamin, Brooklyn

NORTH CAROLINA

Clark, Samuel G., New Bern
McAllister, Harmon C., Chapel Hill
Richardson, O. K., Boone
Riggsbee, Edgar L., Chapel Hill
Templeton, George S., Gastonia
Thorne, Sam T., Charlotte
Tomlinson, Leon C., Fayetteville

OHIO

Best, John A., Youngstown
Cohen, Aaron M., Cleveland Heights
Sister Austin Murphy, Cincinnati

PENNSYLVANIA

Bridges, Robert E., McKeesport
Brown, John P., Lansdale
Dawe, William J., Pen Argyl
Keiser, Herald D., Milton
Millard, J. Philip, McKees Rocks
Neal, Clark, Clymer
Smith, Marilyn L., Philadelphia

SOUTH CAROLINA

Brandt, Robert H., Jr., Greenville

TENNESSEE

Chandler, James R., Chattanooga
Gladhart, Wesley R., Jr., Memphis
Hisky, John M., Memphis
Hope, Owen B., Memphis
Parker, Arthur H., Chattanooga
Thomas, Canzy G., Nashville

TEXAS

Benfer, Eugene L., Floresville
Conner, William C., Fort Worth
Dismukes, Willis H., Ralls
Embree, Carlton S., Corpus Christi
Lambert, Cyrus H., El Paso
McGee, Rebeca C., Laredo
Mulkey, H. T., Port Arthur
Parma, Benjamin G., Galveston
Pavlick, John, Houston
Pfennig, Melvin L., Taylor
Skinner, L. P., Silsbee
Sobol, Edwin F., Jr., Victoria
Spykerman, Leonard E., Bellaire
Tharp, Grady, Bay City
Tijerina, Fernando M., Laredo
Valdes, Guadalupe E., Weslaco
Weaver, Leonard D., Houston
West, Paul E., Hamilton

UTAH

Briggs, Dale, Salina

WASHINGTON

Keyes, D. N., Deer Park
Kincaid, F. Dale, Bellevue
Ottersen, Harry J., Jr., Seattle
Seaman, Raymond E., Dayton

WEST VIRGINIA

Hall, Thomas L., Glen Dale
Huggins, Jack S., Glen Dale
Senkbeil, Victor B., Wheeling

WISCONSIN

Sister Mary Roman Broeckert, Milwaukee

INTERNATIONAL

Benitez de Grenier, Ana Luiz, Havana, Cuba
Brochu, Paul M., Richelieu, P. Q., Canada
Godinez, Tomas, Lima, Peru

Deceased Members

Buchdahl, Myron R., Big Rapids, Mich.
Christensen, Bernard V., Columbus, Ohio, Sept. 13, 1956 (Life Member)
Harrison, William, Montreal, Que., Canada, July 17, 1956 (Life Member)
Lynn, Eldin Verne, Boston, Mass., Dec. 31, 1955 (Life Member)
O'Brien, Donald N., Tampa, Fla.
Rees, Winifred L., Salt Lake City, Utah, June 8, 1956
Sarlo, Joseph, Philadelphia, Pa.
Stingl, Edward K., Milwaukee, Wis., July 3, 1956

STUDENT BRANCHES • • • • (*from page 742*)

University of Florida—The annual "Mortar and Pestle Mixer" meeting of the Student Branch held October 1 was designed to inform new students and non-members of the Branch about the many purposes and benefits derived from membership in the Student Branch. *Joseph B. Pace*, President, opened the program by welcoming the new students. *Dean Perry A. Foote* introduced faculty members and spoke briefly on the "Honor System," which was discussed in greater detail by *Mark Hacken*, the College of Pharmacy representative to the Honor Court of the University.

University of South Carolina Student Branch—The first meeting of the 1956–57 school year was held September 20. *O'Neal Roberts*, President, distributed copies of the Constitution and By-Laws of the Branch and requested all members to read it thoroughly. Special attention was called to Article XIII regarding attendance at Branch meetings. A motion was passed to adopt the A.PH.A. lapel button as the official pin of the Branch.

University of Tennessee—*Grover C. Bowles*, Chief Pharmacist at the Baptist Memorial Hospital in Memphis, spoke on "What Can the A.PH.A. Do for Me, a New Student?" at a special meeting held on October 2. Approximately 100 students were in attendance.

University of Utah—The Student Branch was addressed October 16 by *Dr. Robert P. Fischelis*, Secretary of the A.PH.A.

BIGGER Than LIFE

A new film entitled *Bigger Than Life* starring James Mason was released late this summer by 20th Century-Fox. It is based upon a September 10, 1955, *New Yorker* article, "Ten Feet Tall," by Burton Roueche which reported an actual case of manic-depressive psychosis resulting from cortisone overdosage. The film is absorbing and well produced and reflects favorably on the pharmaceutical industry but it unfortunately casts some reflection upon the practices of medicine and pharmacy.

The story concerns one Ed Avery, a public school teacher, who is hospitalized following a severe attack of a rare inflammation of the arteries. He is told about cortisone, a new wonder drug, which has been effective in arresting similar diseases, and since he faces almost certain death as an alternative, he is placed on the drug. Avery suffers severe depression but instead of reporting his reactions he takes additional tablets to compensate for his feeling. When his supply is exhausted he obtains a new prescription by convincing his physician that the tablets were lost. He later obtains more tablets by convincing a pharmacist that he is a physician.

The story emphasizes the laxness on the part of his physician in not giving adequate warning against possible untoward effects and for not carefully observing his patient for signs of possible overdosage. Also, the very first pharmacy at which he stops gives him $50 worth of cortisone on the weak pretext that he is a physician who has forgotten his prescription pad. The pharmacy shown is dingy and the pharmacist is portrayed as a doddering old man in a black coat. After a climax in which Avery attempts to take his son's life, the film ends with his recovery after he takes the correct dosage and he becomes fully aware of what has happened.

Chet Shaw of Health News Institute and his associates prepared the following letter addressed to James Mason. It speaks for itself.

HEALTH NEWS INSTITUTE
60 East 42nd Street
New York 17, N.Y.

July 6, 1956

Mr. James Mason
Twentieth Century-Fox Film Corporation
444 West 56 Street
New York, N.Y.

Dear Mr. Mason:

The Health News Institute, which is supported by various elements of the pharmaceutical industry and sponsored by other segments of the health team—doctors, nurses, hospitals, pharmacists—is the cooperative public relations arm of the health field.

Yesterday we had the privilege of attending a screening of your new production *Bigger Than Life*, which we found to be a most absorbing film.

Since one of our primary interests is the protection and extension of the good name of the pharmaceutical industry we were gratified with the favorable light cast by the film on the industry's contribution to better health. We believe that you have performed a valuable service in the warning that however useful certain medications may be it is imperative that self-medication be avoided, and that prescription drugs be taken only under the supervision of a physician.

It is our feeling, however, that certain parts of the story, as depicted in your film, put both the pharmacist and the physician in a poor light. It is not entirely credible to assume that a pharmacist would honor just any man's word in dispensing a prescription, especially in the case of a new and potentially dangerous drug, which, at the time, was expensive and in short supply, without a more careful check of identification. It is equally difficult to believe that a physician would provide any patient with such a medication without serious warning and careful instructions as to its use. This latter point departs widely from Mr. Roueche's account of the doctor's behavior in his article in the September 10, 1955, issue of *The New Yorker* magazine. In the Roueche article the physician behaves ethically, seriously and with deep and continuing concern for his patient's welfare.

We are aware, of course, of the necessity for modification of a story line for the sake of dramatic considerations and we do not presume to dramatic criticism. However, we do wish to go on record as objecting to the treatment of characterizations of two of the most important professions in the health field—the doctor and the pharmacist.

Congratulations to you as producer and star of *Bigger Than Life* for a really interesting film, and to Twentieth Century-Fox for a sincere effort at public education in the use of new medications.

Sincerely yours,
CHET SHAW, *Executive Director*

During August, *Time* magazine vigorously criticized the movie, saying:

"It will predictably outrage an army of doctors, frighten thousands of patients, and justifiably annoy drug manufacturers. The medical mischance it purports to describe was always rare and is now almost obsolete.

"The men in white are usually sacrosanct heroes to Hollywood. But *Bigger* makes most of its doctors a Latin-spouting pack of hoddy-doddies not much brighter than Congo witch doctors. Not until Mason turns murderous do they at last hit on the shrewd deduction that he is suffering a mental upset from too much cortisone.

"As movies go, *Bigger Than Life* is a first-rate thriller, like a peep show seen in a padded cell. It is superbly acted by Mason, hair-raisingly directed by Nicholas Ray. But, medically, its greatest blunder is in casting cortisone as an intrinsically monstrous villain—with only a perfunctory bow to the truth that Mason has gone haywire on too many of a good pill. Snorted one medical critic: 'They could have made a movie about a man drinking himself to death on too many gallons of plain water—that's possible too.'"

To date the film has not been highly recommended by any critic nor has it been very well received. This has undoubtedly taught Hollywood a valuable lesson. If it is going to produce motion pictures which reflect on the health professions let it retain experts and consultants from these professions so that the production is authentic and accurately reflects the characters of those who are dedicating their lives to human health and welfare.

State Pharmaceutical Association Conventions

The State Pharmaceutical Associations have nearly all been in existence for many decades. Table I lists the number of the annual conventions held during 1956. California and Idaho are both celebrating their 50th anniversaries, and Alabama, Indiana, Massachusetts, and Virginia are all celebrating their diamond jubilees.

Past and present lists of officers of the State Associations read like a *Who's Who in Pharmacy*. It includes those leaders gifted with outstanding talents in the field of organization, many of whom became leaders in the AMERICAN PHARMACEUTICAL ASSOCIATION itself. Many were immigrants from European countries in the early years, with high ideals, who did much to advance pharmacy as a profession.

TABLE I—STATE PHARMACEUTICAL ASSOCIATIONS ANNUAL CONVENTIONS 1956

State	Convention No.	State	Convention No.
Alabama	75	Nebraska	73
Arizona	31	Nevada	8
Arkansas	74	New Hampshire	82
California	50	New Jersey	86
Colorado	66	New Mexico	27
Connecticut	80	New York	78
Delaware	70	North Carolina	76
District of Columbia	104	North Dakota	71
Florida	66	Ohio	77
Georgia	81	Oklahoma	49
Idaho	50	Oregon	67
Illinois	76	Pennsylvania	79
Indiana	75	Puerto Rico	17
Iowa	77	Rhode Island	82
Kansas	77	South Carolina	80
Kentucky	79	South Dakota	70
Louisiana	74	Tennessee	69
Maine	89	Texas	77
Maryland	74	Utah	64
Massachusetts	75	Vermont	62
Michigan	73	Virginia	75
Minnesota	72	Washington	67
Mississippi	74	West Virginia	49
Missouri	78	Wisconsin	76
Montana	66	Wyoming	39

The special anniversary journals of the six state pharmaceutical associations celebrating their golden and diamond anniversaries make interesting reading. These special issues present a bird's-eye view of the progress made in the profession of pharmacy during the last 75 years.

As George C. Straayer, Director of Public Relations, Schering Corporation, said as he addressed the California Pharmaceutical Association:

"1956 is an important year . . . because it . . . represents the 50th anniversary of the Food, Drug and Cosmetic Act. To us in pharmacy, this means 50 years of progress in helping to bring about healthier and, I hope, happier lives. 1956 is also the 25th anniversary of Fair Trade which has meant so much to every pharmacist. We must admit it's a great year for pharmacy!"

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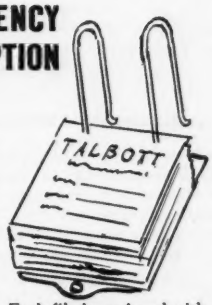

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City ..... State .....

Federal and State Actions

FDA Actions

During August, the Food and Drug Administration seized 600 tons of food unfit for consumption in 43 Federal court actions. Some 68 tons were contaminated by chemicals, including ice cream cones containing boric acid, wheat treated with a mercurial compound for seed use, an imitation vanilla flavor containing coumarin, and frozen spinach with excess DDT residues. Five carloads of bulk wheat were seized for filth contamination among the total of 532 tons seized.

Illegal Over-the-Counter Sales (August Actions)

Okeechobee, Fla.—Selling barbiturates, cortisone, and Selsun suspension without physicians' prescriptions. Found guilty in August, but sentencing was deferred pending probation officer's report. (In September, the owner was fined $5,000, $4,000 of which was remitted, and placed on probation for 2 years; employee fined $200, $100 of which was remitted.)

Muncie, Ind.—Selling and refilling prescriptions for amphetamine and barbiturates without physicians' authorizations. Fined $700 and court costs of $49.40.

Boston, Mass.—Selling amphetamine without physicians' prescriptions. Firm fined $250; individual fined $150, given a 6-month suspended jail sentence, and placed on probation for 1 year.

Substandard and Misbranded Drugs

Coast Chemical Co., and Cleo O. Bedwell, President, Los Angeles, Calif.—Testosterone, desoxycorticosterone, and progesterone were contaminated with micro-organisms. Firm fined $900, $450 of which was suspended, and placed on probation for 1 year; individual fined $225.

Alfred F. Helpa, Warrenton, Oreg.—Labeling of Star Lung Liniment failed to bear an accurate statement of the quantity of contents and the common or usual name of each active ingredient, and contained false and misleading therapeutic claims that the drug was effective (for humans) in the treatment of various respiratory ailments, mumps, high fever, earache, bumps, cuts, bruises, scratches from rusty wire or nails, dog bites, bee stings, backache, rheumatism, sore feet, sweating, swelling, corns, blisters, bunions, cold feet, varicose veins, cramps, stomach trouble, pains in the chest and between the shoulders, boils, swollen gums, eczema, toothaches, sprains, diarrhea, piles, appendicitis, diaper sores, bleeding, frostbite, dandruff, itches, sore breasts, and goiter; (for cows) swelling of the milk bag and mouth disease; and (for geese) sore feet. Charges dismissed because of defendant's age and ill health.

Other Actions

Cobalt Preparations—Because the present state of scientific knowledge concerning the use of cobalt salts as hemopoietic agents is limited, the FDA requires that cobalt preparations containing more than 10 mg. of cobalt chloride or more than 2.5 mg. of cobalt in the form of any cobalt salts are to be sold only under the prescription legend. Such preparations are regarded as new drugs if the labeling or advertising prescribes, recommends, or suggests the administration of more than 15 mg. of cobalt in the form of any of its salts (more than 60 mg. of cobalt chloride for a 24-hour period). The labeling of such preparations must bear adequate information for their use by physicians, including a statement that substantial quantities of iron salts should be administered simultaneously, and all toxic and adverse effects reported to be associated with the use of cobalt must be disclosed, as well as the possible deleterious effects of prolonged administration.

Veterinary Tranquilizers—In order to prevent possible diversion to human use of tranquilizing drugs intended for administration to animals, these new veterinary products will be restricted to professional use. New-drug applications for veterinary tranquilizers specify that labels will bear the warning: "Caution: Federal law restricts this drug to sale by or on the order of a licensed veterinarian."

FTC Actions

"Arthritis and Common Sense"—The publishers of this book by Dan Dale Alexander, which has been on the *New York Times* best seller list for 29 weeks, have denied FTC charges of mirepresenting the effectiveness of the book's recommended course of treatment for arthritis and rheumatism. Witkower Press charges that the Commission's complaint "involves the suppression of a new theory of and treatment for arthritis" and that "although ostensibly directed against advertising statements, the complaint makes it abundantly clear that it is the book itself which is being subjected to attack."

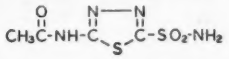
Carter's Little Liver Pills—The FTC has ruled that Carter's Little Liver Pills have no therapeutic effect beyond that of an ordinary laxative. A cease and desist order prohibits Carter Products, Inc., 53 Park Place, New York City, from making claims that Carter's Pills are an effective treatment for liver troubles, biliousness, or such ailments as headaches, bad complexion, and worn-out feeling. The word "liver" must be dropped from the brand name, as the implication is that the pills have some therapeutic effect on the liver, which is false. Contrary to advertising, the FTC ruled that the pills are not a cure for constipation but only a temporary relieving agent. In fact, the Commission stated, the pills tend to aggravate the spastic type of constipation. According to medical testimony, the two ingredients (*podophyllum*, the resin of the dried root of the mandrake or mayapple plant, and *aloes*, the dried juice of the aloe plant) have no effect in curing constipation, in promoting the flow of bile, or in aiding the digestive process.

Reglex—Francis L. Stepanek, trading as American Reglex Co., has agreed with the FTC not to represent that his birth control calendar device would enable a woman to ascertain with certainty her fertile and sterile days or provide an unfailing system of birth spacing.

Renor Concentrate and Rennel Concentrate—The Renor Company has been charged by the FTC with misrepresenting its products, which are essentially laxatives, as effective in weight reducing.

New and Nonofficial Remedies

ACETAZOLAMIDE; Diamox (Lederle); 5-Acetamido-1,3,4-thiadiazole-2-sulfonamide.



Actions and Uses. Acetazolamide, a heterocyclic sulfonamide compound, is a potent inhibitor of carbonic anhydrase, the enzyme that catalyzes the reversible hydration of carbon dioxide and dehydration of carbonic acid. The most important pharmacological action of acetazolamide is referable to inhibition of carbonic anhydrase in the renal tubule resulting in a depression of tubular reabsorption of bicarbonate; however, the drug acts in a manner completely different from that of the organic mercurials, promoting the excretion of bicarbonate ion rather than chloride ion. The result of this selective action is loss from the extracellular fluid, by way of the kidney, of sodium bicarbonate, to a lesser extent of potassium bicarbonate, and of an isosmotic equivalent of water. Thus, diuresis, alkalinization of the urine, and a mild degree of metabolic acidosis occur.

Acetazolamide is absorbed rapidly from the gastrointestinal tract. Peak plasma levels are reached within 2 hours after administration, and the duration of therapeutic effectiveness is about 8 to 12 hours. The drug is rapidly excreted in an unchanged form by the kidney, about 80% of a single oral dose appearing in the urine within 8 to 12 hours.

Acetazolamide has been employed as a diuretic in the treatment of edema associated with congestive heart failure. Unlike most mercurials, it is well tolerated when given by the oral route, but its diuretic action is not as rapid or as dramatic as that observed after organic mercurial therapy. Patients with predominantly left-sided decompensation severe enough to require hospitalization usually do not respond well to therapy with this agent. In these patients, mobilization of pulmonary edema fluid is best achieved by use of the mercurials; however, subsequent replacement with acetazolamide may often maintain such patients in an edema-free state, with relief from dyspnea and orthopnea. In patients with severe right-sided heart failure and large accumulations of fluid, paracentesis is generally required before favorable responses to acetazolamide can be elicited. Here too, it is frequently necessary to initiate diuretic therapy with the mercurials, with subsequent replacement by acetazolamide.

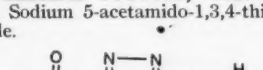
The best results with this drug have been obtained in ambulatory patients with mild to moderate cardiac decompensation and cor pulmonale. Its use does not eliminate the need for other therapy such as with digitalis, bed rest, fluid restriction, or sodium-free diet. It is of no value in the treatment of nephrotic edema or nephritis.

Acetazolamide has been employed in the treatment of epilepsy. Acetazolamide appears to have therapeutic value in the treatment of glaucoma. Its action is different from that of the usual miotics, since the drug depresses the formation of the aqueous humor rather than facilitates its drainage; it is therefore most valuable as a supplement to the therapy with cholinergics generally used to reduce intraocular pressure.

Undesirable side-effects of acetazolamide therapy, though rather frequent, are usually not serious and are rapidly reversible. Drowsiness and paresthesias over the face and extremities are the most commonly encountered side-effects. Fatigue, excitement, gastrointestinal upsets, and polydipsia have been observed less frequently. In patients with hepatic cirrhosis, the drug may induce episodes of disorientation. Since acetazolamide is rapidly excreted, the inhibition of carbonic anhydrase by daily oral doses is intermittent, and compensatory mechanisms prevent serious distortions of acid-base balance; however, it is contraindicated in idiopathic renal hyperchloremic acidosis. Because the drug causes a sodium and potassium diuresis, it is also contraindicated in all conditions in which there is a known depletion of these ions, including adrenal cortical hypofunction (Addison's disease) or all types of adrenal failure. Since acetazolamide is a sulfonamide derivative, it is possible that any of the untoward reactions reported after bacteriostatic sulfonamide administration could occur after acetazolamide therapy. Fever and allergic type skin eruptions have already been reported in patients receiving this drug. Although other manifestations of sulfonamide reactions such as bone marrow depression, crystalluria, and renal calculi have not been observed, the physician should be alert for the appearance of such reactions, and the drug should be withdrawn at the first sign of their occurrence.

Dosage. Acetazolamide is administered orally. For diuresis in patients with congestive heart failure, 0.25 to 0.375 Gm. daily in the morning appears to be the optimal dosage, although some may respond to administration every other day. Increasing the dosage beyond this level does not increase the diuresis and may increase the incidence of side-reactions. If diminished diuretic effectiveness occurs after prolonged administration, dosage adjustments may be necessary. In the treatment of epilepsy, the dosage must be individualized according to the response of the patient. Although some patients are reported to respond to lower doses, the proposed range is 0.375 to 1 Gm. once a day. If the drug is administered adjunctively with other anticonvulsants, the initial daily dose should not exceed 0.25 Gm. This can then be increased gradually. In the treatment of acute congestive and secondary glaucoma, acetazolamide should be used as an adjunct to the usual miotic therapy in doses of 0.25 Gm. every 4 hours.

ACETAZOLAMIDE SODIUM; Diamox Sodium (Lederle); Sodium 5-acetamido-1,3,4-thiadiazole-2-sulfonamide.



Action and Uses. Acetazolamide sodium, the sodium salt of acetazolamide, exhibits the same actions and has the same potency as equivalent amounts of acetazolamide. It is more soluble than the parent drug and may therefore be administered parenterally. (See the monograph on acetazolamide.)

(*Continued on page 750*)

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bottles of 100	4455	30.60	51.00

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potentiated antibiotic efficacy providing:

1. a new extended antibiotic-sensitive spectrum including "resistant" staphylococci
2. new protection against the emergence of resistant strains
3. new superior safety and toleration

*TRADEMARK

NNR . . . . . *(from page 747)*

Dosage. Acetazolamide sodium is administered by either the intramuscular or intravenous routes. It should be given only when oral administration of acetazolamide is impractical. The dosage expressed in terms of the parent drug, is the same as for acetazolamide. (See the monograph on acetazolamide.)

BUSULFAN; Myleran (B. W. & Co.); Tetramethylene ester of methanesulfonic acid; 1,4-dimethanesulfonoxybutane.

$$CH_3SO_2O—CH_2(CH_2)_2CH_2—OSO_2CH_3$$

Actions and Uses. Busulfan, a disulfonic acid ester chemically unrelated to the nitrogen mustards and triethylene melamine, resembles these compounds pharmacologically in that it is an active alkylating agent. The cytotoxic actions of busulfan, however, do not affect the germinal tissues, lymphatic tissues, or the intestinal epithelium but are largely restricted to the bone marrow. In small doses, the drug selectively depresses proliferation of the granulocytic elements and, to a lesser extent, thrombocytopoiesis. In larger doses, erythrocyte and lymphocyte proliferation is depressed, and hypoplasia of the marrow eventually ensues. Although busulfan is not soluble in water, it is absorbed in active form from the gastrointestinal tract and is thus effective by the oral route. To date, little is known of its metabolic fate or excretion.

Because of its selective depressant action on granulocytopoiesis, busulfan is valuable in the treatment of chronic granulocytic (myelogenous, myeloid) leukemia. Although some hematologists advocate use of the drug in the initial therapy of the disease, most consider x-ray therapy or sodium radiophosphate (P^{32}) preferable for this purpose. Whether used initially or adjunctively with radiation, however, busulfan produces remissions in a significant percentage of patients.

Although busulfan depresses hematopoiesis, it is indicated only in chronic granulocytic leukemia and should not be used in terminal cases or in the acute phase of the disease. It is ineffective in acute leukemia, chronic lymphocytic leukemia, Hodgkin's disease, malignant lymphoma, or solid tumors.

The clinical toxicity of busulfan is related chiefly to production of thrombocytopenia and generalized bone marrow depression. The dosage for initial and maintenance therapy should be governed not only by the subjective response of the patient but also by the hematological response. Complete blood cell counts, including thrombocyte levels, are necessary at least once each week, preferably more often. In the event of hemorrhagic manifestations, a precipitous drop in leukocyte count, or abnormal depression of bone marrow, busulfan should be withdrawn for 10 to 20 days. Extreme caution should be exercised in administering the drug to patients with bone marrow previously depressed by other therapy.

Dosage. Busulfan is administered orally. The usual initial dose, which must be based on the hematological response, is 2 to 6 mg. daily. If bleeding tendencies, precipitous drop in leukocyte count, or generalized bone marrow depression do not ensue, its use is continued on a daily basis until clinical improvement is noted. This may require 3 or 4 weeks to several months. If maintenance therapy is deemed advisable once the patient is in remission, the usual dose for this purpose is 1 to 3 mg. daily.

CRYPTENAMINE ACETATES; Unitensen Acetates (Irwin, Neisler); The acetate salts of alkaloids derived from an extract of *Veratrum viride.* The structural formulas of the component alkaloids have not been determined.

Actions and Uses. Cryptenamine acetates shares the actions, uses, and toxicity of other parenterally administered extracts of *Veratrum viride.*

Dosage. Cryptenamine acetates is administered by intravenous or intramuscular injection. For the management of eclampsia (convulsive toxemia) and hypertensive crisis (encephalopathy), the drug is administered intravenously. For intravenous administration, 1 mg. (0.5 cc. of a solution containing 2 mg. per cc.) is diluted with 20 cc. of 5% dextrose in water and infused at a rate of approximately 1 cc. per minute. During infusion, blood pressure readings should be made initially at one-minute intervals and the infusion slowed in accordance with the reduction in pressure. If a precipitous fall occurs, infusion should be temporarily discontinued and not resumed for at least 5 minutes, after which it may again proceed until the blood pressure is reduced to the desired level. Subsequent blood pressure measurements should be continued at such intervals as are necessary to determine the need for further infusion. The intravenous administration of 50 mg. of pentobarbital sodium is indicated when emesis occurs.

Once blood pressure is stabilized, therapy may be maintained as follows: In the treatment of preeclampsia (nonconvulsive toxemia) or maintenance therapy of hypertensive crises, cryptenamine acetates is administered by intramuscular injection. In preeclampsia an initial dose of 1 mg. (0.5 cc. of a solution containing 2 mg. per cc.) may be repeated hourly if necessary and increased by 0.2-mg. increments until blood pressure is reduced to the desired level. Satisfactory maintenance of pressure can generally be achieved by injections at intervals of 3 to 6 hours. Both pulse and blood pressure should be recorded at 30-minute intervals as a guide to intramuscular administration.

CRYPTENAMINE TANNATES; Unitensen Tannates (Irwin, Neisler); The tannate salts of alkaloids derived from an extract of *Veratrum viride.* The structural formulas of the component alkaloids have not been determined.

Actions and Uses. Cryptenamine tannates is similar in actions, uses, and toxicity to other orally administered preparations of *Veratrum viride.*

Dosage. Cryptenamine tannates is administered orally to control moderate to severe hypertension. The initial dosage is 2 mg. twice daily. If the patient is hospitalized, this dosage may be increased on a day-to-day basis until the desired blood pressure level is reached. For ambulatory patients, dosage should not be increased more frequently than once a week; some clinicians further advise daily determinations of blood pressure. When the total daily dose exceeds 4 mg., the drug should be taken in three divided doses. The first dose usually is administered after breakfast and should be larger than that administered in the afternoon but smaller than that administered before retiring. In order to prevent the tendency toward nausea, periodic interruptions in therapy may be necessary.

DIOCTYL SODIUM SULFOSUCCINATE, U.S.P.; Colace (Mead Johnson); **Doxinate** (Lloyd Brothers); Bis-2-ethylhexyl sodium sulfosuccinate.

Actions and Uses. Dioctyl sodium sulfosuccinate is a surface-active compound sometimes employed as a dispersing agent in externally applied preparations of drugs. The compound is relatively inert pharmacologically when administered orally but lowers surface tension in the gastrointestinal tract. Thus, internally it acts in a manner similar to that of detergents and may permit water and fatty material to penetrate and to be better mixed with the fecal material. This often results in a softer and more homogeneous stool. Limited clinical evidence sug-

(Continued on page 752)

ANNOUNCING

NEW PRODUCT

S.K.F.'s Duentric†-coated tablets that make possible—for the first time—

high, long-term dosage of **ASPIRIN**—without gastric upset

Indicated wherever high doses of aspirin are needed or where gastric discomfort makes therapy with ordinary aspirin impractical —*particularly in rheumatic disease.*

SKF	Package Size	Suggested•Price to Retailer	Minimum Retail Price
'Ecotrin' ('Duentric'-coated) tablets, 5 gr.	Bottles of 100	$1.00 each	$1.50 each

Smith, Kline & French Laboratories, Philadelphia

*T.M. Reg. U.S. Pat. Off. †Trademark

NNR . . . . . *(from page 750)*

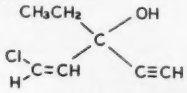
gests that the drug exerts little effect on the absorption of fats or fat-soluble vitamins in normal patients or those with cystic fibrosis of the pancreas or with celiac disease. When the drug is given in therapeutic doses, no irritation of the large intestine has been observed.

Dioctyl sodium sulfosuccinate is useful as an aid in the treatment of constipation. Its administration has resulted in softer fecal masses in patients with impaction associated with megacolon, anal fissure and postoperative anal atresia. It also has been employed successfully in bedridden geriatric patients or infants convalescing from poliomyelitis. Clinical experience with the use of dioctyl sodium sulfosuccinate in less serious but more common types of constipation is not extensive at the present time.

The toxicity of the drug appears to be negligible, and doses far in excess of the therapeutic range have been administered without untoward effects. Because it is sometimes administered with mineral oil, the possibility exists that it might promote the absorption of the mineral oil, with resultant tissue reactions in the mesenteric lymph nodes or liver. Until this possibility can be more fully evaluated, prolonged administration of dioctyl sodium sulfosuccinate with mineral oil probably should be avoided.

Dosage. Dioctyl sodium sulfosuccinate is administered orally in average doses of 10 to 20 mg. daily for infants and children and from 10 to 60 mg. daily for adults. In certain cases, the daily administration of 50 to 100 mg. in divided doses is required.

ETHCHLORVYNOL; Placidyl (Abbott); Ethyl β-chlorovinyl ethynyl carbinol.



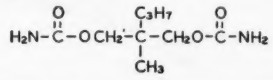
Actions and Uses. Ethchlorvynol, a tertiary acetylenic carbinol, contains a β-chlorovinyl group that distinguishes it from less active compounds of this series. It has been shown to possess hypnotic and anticonvulsant properties in laboratory animals. In humans, ethchlorvynol exerts a mild hypnotic action. Its effect is less profound and not as predictable as that obtained with the barbiturates. In contrast to the barbiturates, ethchlorvynol has not been reported to possess addicting properties, and the incidence of "hangover" effects is less. At effective dosage levels, ethchlorvynol acts rather promptly after administration. Its duration of action is approximately 5 hours. It is absorbed rapidly from the gastrointestinal tract. Animal studies indicate that it is metabolized to an appreciable extent in the liver. The kidneys do not appear to be involved in its elimination.

In clinical trials, ethchlorvynol has proved useful for the induction of sleep in selected patients with simple insomnia. Where pain or extreme anxiety are complicating factors, the drug may not be as efficient. It is therefore useful primarily for patients with mild agitation or mild tension and for patients in whom the use of barbiturates is inadvisable or contraindicated. The drug has not been evaluated as a daytime sedative.

Clinical toxicity studies and long-term feeding experiments in animals have failed to reveal any serious deleterious effects associated with the use of ethchlorvynol. It appears to have a wide margin of safety with fewer and less intense side-effects than are observed after use of barbiturates. Evidence to date has shown no tendency toward development of psychic dependence or habituation; however, until more extensive clinical experience with ethchlorvynol is gained, patients receiving the drug over prolonged periods should be carefully observed for signs of toxic reactions.

Dosage. Ethchlorvynol is administered orally. For the treatment of ordinary insomnia, 0.5 Gm. may be administered at bedtime.

MEPROBAMATE; Equanil (Wyeth); **Miltown** (Wallace); 2 - Methyl - 2 - *n* - propyl - 1,3 - propanediol dicarbamate.



Actions and Uses. Meprobamate is the dicarbamate ester of a propanediol derivative that is chemically distinct from another propanediol derivative, mephenesin. Studies in animals indicate that meprobamate shares the central interneuronal blocking (skeletal muscle relaxant) action of mephenesin but has an action of much longer duration. Available clinical evidence indicates that it may exert a useful damping effect in certain cases of abnormal motor activity seen in athetoid and dyskinetic patients, and is sometimes effective as an antispastic agent in fibrositis where muscle spasm predominates. Results have been poor in rheumatoid arthritis. Meprobamate also exhibits anticonvulsant properties in experimental animals but its value in epilepsy has not been clearly defined as yet. On the basis of presently available clinical evidence, the drug appears to be useful as a mild hypnotic in simple insomnia or as a tranquilizing agent that can be employed in place of potent sedatives and along with psychotherapy in the management of psychoneurotic anxiety and tension states. Meprobamate is useful as premedication in electroshock therapy to allay preshock anxiety and postshock confusion and headache. Preliminary reports indicate it may be useful in the treatment of alcoholism. Its value in paralysis agitans and in management of frank psychoses has not been established.

After systemic absorption, meprobamate is apparently conjugated with glucuronic acid in the body and excreted in the urine; about 10% is excreted unchanged. Its toxicity is low, and tolerance does not appear to develop with continued use. Allergic reactions have occurred rarely, and gastric discomfort has been observed only occasionally. Drowsiness associated with the use of meprobamate appears to be an accompaniment of its mild somnifacient action rather than a side-effect; hypnotic doses are not ordinarily associated with morning "hangover". No other side-effects have been reported.

Dosage. Meprobamate is administered orally. The usual dosage for adults is 0.4 Gm. three or four times daily. For relaxation to promote sleep, a single dose of 0.4 to 0.8 Gm. is taken on retiring. Response to the drug may vary in different patients.

Supplemental Statement by A.M.A. Council on Pharmacy and Chemistry

◆ **Intramuscular Use of Chloramphenicol.** On the basis of currently available evidence, the Council concluded that the intramuscular administration of this antibiotic is justified in the treatment of typhoid and other serious infections caused by organisms that are susceptible to its action. When chloramphenicol is administered by this route as a microcrystalline suspension, blood levels are maintained for a longer period than for those obtained with equal oral doses. The usual adult dose of an intramuscular suspension is 1 Gm. every 8 to 12 hours. In children weighing 15 Kg. (33 lb.) or less, 100 to 150 mg. per Kg. of body weight may be injected daily in three or four divided doses.

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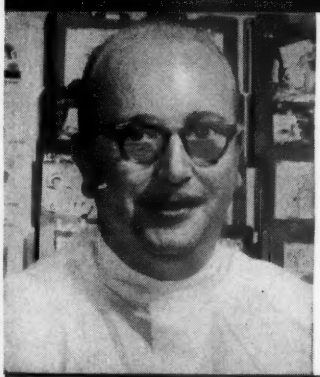

Henry Golditch (Preston St. & Milton Ave., Baltimore, Md.) says: "Since I have had 'Benzedrex' Inhalers on display, I sell many more of them."

Smith, Kline & French Laboratories, Philadelphia

*T.M. Reg. U.S. Pat. Off.

'Benzedrex' Inhaler is regularly promoted to physicians in the Journal of the American Medical Association

Erythrocin in treating tonsillitis and otitis externa*

2/22/56

DISCHARGE SUMMARY

Patient, white male, age 4, entered the clinic on 2/13/56, with a history of yellow discharge from the right ear, a fever, and sore throat of two days duration.

Temperature orally was 100°, pharynx infected, tonsils inflamed, crusted purulent material seen in right ear canal; tympanic membrane normal. Diagnosis -- tonsillitis and otitis externa.

Culture revealed Staphylococcus aureus, coagulase positive, resistant to penicillin and sensitive to erythromycin.

ERYTHROCIN (erythromycin) was started in doses of 25 mgm/kg -- 400 mgm in 4 equally divided doses.

After 24 hours of therapy, patient was afebrile and comfortable. T = 99.6. Throat slightly infected. Secretions in ear canal were dry and both tympanic membranes were normal.

Culture on 2/15 showed no coagulase positive staphylococci or other pathogens. On 2/22, follow-up exam showed him to be completely asymptomatic and free of unusual physical findings. The drug was stopped at this time.

Final Diagnosis: tonsillitis and otitis externa due to Staphylococcus aureus.

Result: complete clinical bacteriologic cure after 9 days with ERYTHROCIN therapy.

*Communication to Abbott Laboratories

V 1 7 11 1 NO 56 UMI

"clinical response good or excellent"

In one recent study, 18 patients with acute follicular tonsillitis and septic sore throat, were given erythromycin. Infecting organism was *Str. pyogenes*. The investigator stated, "*In all 18, the clinical response could be regarded as either good or excellent.*"[1]

This, of course, is only one of many reports showing the effectiveness of ERYTHROCIN against coccic infections. You'll get the same good results (nearly 100% in common, bacterial respiratory infections) when you prescribe *Filmtab* ERYTHROCIN.

"toxicity lower in erythromycin-treated patients"

After a study of 208 patients treated with erythromycin (78), procaine penicillin (78) and a placebo (52), the investigator stated: "*. . . the incidence of toxicity* (compared to procaine penicillin) *was significantly lower in the erythromycin-treated patients.*"[1]

Actually, ERYTHROCIN stands on a remarkable record of safety. After four years, there's not a single report of a severe or fatal reaction attributable to erythromycin. Also, allergic reactions rarely occur. *Filmtab* ERYTHROCIN Stearate (100 and 250 mg.), is available in bottles of 25 and 100, at all pharmacies.

Abbott

® Filmtab—Film sealed tablets, Abbott; pat. applied for.

1. Herrell, W. E., Erythromycin, Antibiotics Monographs, No. 1, p. 29. New York, Medical Encyclopedia, Inc., 1955.
Idem p. 30.

filmtab

Erythrocin® STEARATE

(Erythromycin Stearate, Abbott)

611243

Progress in Medicine

Blood Pressure Reaction to Anesthesia of Patients on Rauwolfia Therapy

Serious falls in blood pressure and slowing of heart rate were noted during anesthesia in 16 out of 40 surgery patients who were taking one of the rauwolfia alkaloids, according to a report by Drs. C. S. Coakley, S. Alpert, and J. S. Boling in *J.A.M.A.*, **161**, 1143(July 21, 1956). The 16 patients did not respond satisfactorily to vasopressor drugs such as phenylephrine. The physicians recommend that rauwolfia therapy should be discontinued for 2 weeks before scheduled surgery. Emergency surgery on these patients can be carried out by using vagal blocking drugs such as atropine sulfate, scopolamine, or oxyphenonium to prevent and treat vagal circulatory responses.

Barbiturate Removal by Mechanical Kidney

Hemodialysis with an artificial kidney was used successfully in the removal of poisonous levels of barbiturates from the blood of 6 out of 8 patients so treated, according to a report by four Washington D.C. physicians in *J.A.M.A.*, **161**, 820(June 30, 1956). A tube from the mechanical kidney is attached to the patient's artery and the blood is circulated through the machine where it is "washed" by a dialyzing solution which removes the drug before the blood returns to the body. The physicians state that the higher the blood level of barbiturates, the faster will be their removal by hemodialysis, and the amount of drug removed increases with the severity of poisoning. The treatment is more efficient if done soon after the drug is ingested.

Combined Therapy of Amebiasis with Diiodohydroxyquinoline, Chloroquine, Bacitracin, and Neomycin

No instance of parasitic recurrence was noted in 30 cases of chronic intestinal amebiasis treated with a combination of four drugs in tablets (Diodotracin) each containing: diiodohydroxyquinoline(5,7-diiodo-8-quinolinol), 350 mg.; chloroquine diphosphate, 50 mg.; bacitracin, 1,000 units: and neomycin (as sulfate), 4,000 units. Dosage was: children under 5 years, 1 tablet twice daily: children 5 to 10 years, 1 tablet three times daily; older children and adults, 2 tablets 3 times daily; all doses administered after meals during 10 consecutive days. The combination was well tolerated by all patients, according to the report in *Antibiotic Med. & Clin. Therapy*, **3**, 120(July 1956).

Enzyme Tests for Glucose

A comparative study of two tests for glucose in urine, based upon the use of glucose oxidase, a vegetable peroxidase, and *o*-tolidine impregnated paper (Tes-tape and Clinistix), is reported by J. A. Hunt, *et al.*, in *Brit. Med. J.*, 586(Sept. 8, 1956). When the strip is dipped in urine containing glucose and withdrawn, the glucose in the urine on the paper is oxidized by atmospheric oxygen in the presence of the oxidase to form gluconic acid and hydrogen peroxide. The latter then reacts with *o*-tolidine in the presence of the peroxidase to produce a blue color. The investigators found both test materials equally good for detecting glucose, but the claim that one product permits accurate estimation of glucose concentration is not confirmed.

Nicotinic Acid Lowers Blood Cholesterol

Administration of nicotinic acid in large doses (500-mg. oral capsules 6 times daily or 2 capsules 3 times daily initially, and up to 4.5 Gm. or down to 1.5 Gm. according to patient response) to patients with hypercholesterolemia (plasma cholesterol higher than 250 mg. per 100 cc.) caused the plasma cholesterol to decrease significantly in 9 of 13 patients observed for 12 weeks and in 3 of 5 patients observed for 4 weeks. Side reactions, consisting of flushing and pruritis, occurred in all cases but tended to diminish rapidly after the first few days of treatment. Urticaria, nausea, and vomiting, which were observed in a few patients, subsided when the drug was withheld temporarily and did not recur when administration was resumed. The report of these preliminary trials was published in *Proceedings Staff Meetings Mayo Clinic*, **31**, 377(June 27, 1956).

Polio Vaccine and Paralytic Cases

Polio vaccine reduced cases of paralytic polio 75% last year among those children who were vaccinated, Surgeon General L. A. Scheele reported to the A.M.A. at its June meeting in Chicago. He gave reassurance on the safety of the vaccine now produced and urged physicians to continue vaccinating children through the danger months. A report by Drs. G. C. Brown and D. C. Smith, in the June 2 issue of *J.A.M.A.*, stresses their finding that polio vaccine appears to work as well in infants and preschool children as it does in school children, providing they receive at least two and preferably three inoculations.

Steroid Treatment of Nephrosis

Favorable responses in 14 out of 18 patients with nephrosis who were treated with the natural steroid hydrocortisone and the synthetic steroid prednisone are reported by Dr. H. C. Goodman, *et al.*, of PHS National Heart Institute, in the April issue of *Clinical Research Proceedings*. With oral dosage of the two steroids adjusted to allow for the fact that prednisone is about four times as potent as hydrocortisone, both were found to be equally effective when administered for one to two months. The physicians note that the two steroids are not infallible cures, and that skin rashes and temporary emotional disturbances were observed when the drugs were decreased or discontinued.

Topical Use of Amphomycin Ointments

Clinical trials of ointments containing calcium amphomycin 5 mg./Gm. (15 patients) or a combination of 5 mg./Gm. each of calcium amphomycin and neomycin (13 patients) for the treatment of various types of skin disease are reported in *Antibiotic Med. & Clin. Therapy*, **3**, 142(July 1956). Six of 8 cases of impetigo treated with these ointments improved promptly. Seventeen cases of acne vulgaris failed to show clinical improvement. There was no evidence of skin sensitization or irritation from the ointments used for periods of 7 to 60 days.

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℞ information service

Members of the American Pharmaceutical Association are invited to submit their professional problems to The Journal, 2215 Constitution Ave., N. W., Washington 7, D. C. Inquiries should include all pertinent details.

Trade Name Confusion

Can you tell us what the following trade names stand for: Hycodan, Terrabon, and Tetrabon.—N. L. Maryland.

Hycodan is the name that was registered by Endo Products Inc. for dihydrocodeinone bitartrate. The name appeared on Endo's marketed oral tablets, powder, and syrup in which dihydrocodeinone bitartrate was the medicinal (antitussive) ingredient. In August 1955, homatropine methylbromide was added to Endo's products containing dihydrocodeinone bitartrate, but the new products continue to feature the name Hycodan. Obviously, one should not use the Endo products now labeled Hycodan when dihydrocodeinone bitartrate is prescribed. The labels on Endo's Hycodan products carry a note on the changed formula.

Terrabon and Tetrabon are trademarks of Pfizer Laboratories for homogenized mixtures containing calcium dioxytetracycline and tetracycline respectively. Appearance of the phrase "brand of oxytetracycline" under the word "Terrabon" and the phrase "brand of tetracycline" under the word "Tetrabon" in advertisements and literature is a form that is convenient in the preparation of advertising copy. It is confusing to the reader. The Pfizer trade name for oxytetracycline is Terramycin and for tetracycline it is Tetracyn.

Cinnabar, Sulfur, Bentonite Suspension

The following prescription was compounded with Carbowax 1500 and with polyethylene glycol ointment U.S.P. Bensulfoid (Polythress) was used for the bentonite and sulfur. Final addition of rose water caused rapid separation leaving the cinnabar as a flocculent precipitate.

Hydrarg. sulf. rub. (cinnabar)	0.1
Sulf. colloidal	1.0
Bentonite	2.0
Carbowax	15.0
Aq. Rosae q.s.	120.0

The polyethylene glycols such as Carbowax (PEG) 1500 or the combination of PEG 400 and 4,000 (6:4) in polyethylene glycol ointment are unctuous materials that can be used as ointment bases for many stable substances. They are water-soluble and lose their unctuous character upon addition of relatively small amounts of water unless other substances are added. Emulsifying, water-washable ointment and suspension bases can be prepared by addition of emulsifying agents, such as polyethylene glycol 400 monostearate, to suitable PEG compounds or mixtures. See THIS JOURNAL, **15,** 41(Jan. 1954). In the present instance, a satisfactory preparation is compounded by dispersing the mixture of cinnabar 0.1 Gm. and Bensulfoid 3 Gm. in a mixture of 8 Gm. of polyethylene glycol ointment and 5 Gm. of polyethylene glycol 400 monostearate, then adding the rose water in portions with thorough trituration. The suspension will settle slowly and resuspend easily.

Stable Theophylline Derivatives

Are products of theophylline that are relatively stable in liquid preparations available?—J. G., Maryland.

The product used most frequently at present is the combination of 2 molecules of theophylline and 1 molecule of ethylenediamine or aminophylline U.S.P. Its solutions gradually absorb carbon dioxide from the air with liberation of theophylline which is insoluble. A very soluble compound is 7-beta-hydroxypropyl theophylline, which forms stable neutral solutions (see page 674). A recent patent (U.S. 2,745,786) granted to J. Baisse of the French Société Promidel describes formulas for aerosols of acetic acid derivatives of theophylline that are stable to carbon dioxide, have a *p*H less than 7, and are compatible with alkaloidal salts. A typical compound is piperazine theophylline acetate.

Ophthalmic Solutions with Cellulose Derivatives

Would there be any therapeutic objection if methylcellulose is replaced with carboxymethylcellulose in the following ophthalmic vehicle for pilocarpine, homatropine, and dionin? Vehicle: MC 400, sodium chloride, benzalkonium chloride, and distilled water. We find that CMC makes a clearer solution and makes it faster.—F. J. V., New Jersey.

Uses of methylcellulose (MC) and sodium carboxymethylcellulose were reviewed in THIS JOURNAL, **14,** 111(Feb. 1953). CMC is the Hercules Powder Co. trademark for the sodium salt of carboxymethylcellulose acid, and is referred to as NaCMC. A report on the use of NaCMC in ophthalmic ointments in THIS JOURNAL, **13,** 710(Oct. 1952) gives further information. Generally, MC appears to be chemically compatible with the alkaloidal salts. No noticeable imcompatibility occurred between NaCMC and pilocarpine HCl and homatropine HBr in our tests. It would be advisable to prepare sample solutions with your drugs to make certain that no physical changes occur before making the change in the formula. If no physical or chemical change occurs, there is no reason to doubt the therapeutic efficacy of these solutions.

Dettol Germicide Antiseptic—Source

See THIS JOURNAL, **17,** *411(June 1956) for products marketed in England.*

The liquid product, Dettol Germicide Antiseptic, is now manufactured in the United States by The R. T. French Company and is distributed by Atlantis Sales Corporation. This product contains 4.8% chloroxylenol.

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NEW Prescription Products

All items on which information has been received in the past thirty days are reported here. Manufacturers are urged to send details of their new products as early as possible, so that pharmacists through these pages will have full information at the same time, or even before, products are detailed to the physician. For inclusion in this department, for which there is no charge, send descriptive literature to the Practical Pharmacy Edition, Journal of the American Pharmaceutical Association, 2215 Constitution Avenue, N.W., Washington 7, D.C.

Athemol Tablets

Description: Tablets containing, in each, 200 mg. theobromine magnesium oleate.

Indications: In the treatment of arteriosclerosis and its consequences, climacteric difficulties, and for preoperative preparation of aging people.

Administration: As directed by physician.

Form Supplied: Bottles of 100 and 1,000 tablets.

Source: Meyer and Company, Detroit, Mich.

Compazine Tablets

Description: Each tablet contains 5 mg. of prochlorperazine, 2-chloro-10-[3-(1-methyl-4-piperazinyl)-propyl]-phenothiazine, as the dimaleate.

Indications: Tranquilizer in mild and moderate mental and emotional disturbances. Antiemetic in nausea and vomiting.

Administration: Orally, 5 mg. three or four times daily, adjusted to the individual but only rarely exceeding twice this dosage. Children over 12 should use the lower adult dosage. No dosage has been established for children under 12. Not recommended for serious adult conditions requiring more than 40 mg. per day. Recommended for short-term therapy (not longer than 2 weeks).

Form Supplied: Bottles of 50 and 500 tablets.

Source: Smith, Kline & French Laboratories, Philadelphia, Pa. (See page 719.)

Matromycin Capsules

Description: Each capsule contains 250 mg. of oleandomycin.

Indications: For the control of infections caused by resistant staphylococci and a wide range of gram-positive and gram-negative bacteria, as well as rickettsiae, certain large viruses, and protozoa.

Administration: As directed by physician.

Form Supplied: Bottles of 16 capsules.

Source: Pfizer Laboratories, Brooklyn, N. Y. (See page 716.)

Prothromadin Tablets

Description: Scored tablets containing, in each: 10 mg. (white) or 25 mg. (red) of warfarin sodium.

Indications: Lowers blood clotting time by reducing prothrombin concentration. Useful where anticoagulant action is desirable.

Administration: Initial single dose of 75 mg. For maintenance, 5 to 10 mg. daily, determined by prothrombin clotting time.

Form Supplied: Both strengths in bottles of 25 and 100 tablets.

Source: G. F. Harvey Co., Saratoga Springs, N. Y.

Pyrazoline-S

Description: An aqueous injectable solution containing in each cc.: dipyrone, 500 mg.; physostigmine salicylate, 0.6 mg.; atropine sulfate, 0.6 mg.

Indications: For joint and muscle pain, especially those involving the pain-spasm-pain cycle (sprains, arthritis, rheumatism, bursitis, sciatica, neuralgia, etc.).

Administration: I.m. injection—rheumatoid arthritis and allied disorders, 1 cc. 3 times weekly; muscular injuries, 1 cc., with additional daily injections as required.

Form Supplied: 30-cc. vials.

Source: U.S. Standard Products Co.

Rolicton Tablets

Description: Each uncoated scored tablet contains 400 mg. of aminoisometradine (1 - methallyl - 3 - methyl-6-aminotetrahydropyrimidinedione).

Indications: For maintaining patients in an edema-free state. Not intended for initial diuresis in severe congestive heart failure.

Administration: One tablet 4 times daily with meals on the first day, then 1 tablet twice daily. When other diuretics cannot be used, up to 10 tablets may be given for short periods of time.

Form Supplied: Bottles of 100 and 500.

Source: G. D. Searle & Co., Chicago, Ill.

Sigmamycin Capsules

Description: Each green capsule contains 250 mg. of the combination: oleandomycin (Matromycin) phosphate, 83 mg. and tetracycline·HCl, 167 mg.

Indications: For better control of infectious disease through control of the changing microbial population by potentiated (synergistic) antibiotic action.

Administration: Two capsules 4 times daily.

Form Supplied: Bottles of 16 and 100.

Source: Pfizer Laboratories, Brooklyn, N.Y. (See page 748.)

Sominat Tablets

Description: Tablets containing, in each: chloral hydrate, 382 mg., and antipyrine, 218 mg. (a molecular ratio of 2:1, respectively, forming a stable, nonhygroscopic, practically odorless and tasteless, crystalline solid).

Indications: For sedation and hypnosis with mild analgetic action. Contraindicated in severe renal and hepatic disease.

Administration: Hypnosis, 1 to 2 tablets with full glass of water. Sedation, 1/2 tablet with water.

Form Supplied: Bottles of 100.

Source: National Drug Company, Phila., Pa.

Other New Products

(Including chemicals, clinical trial drugs, diagnostic aids, and equipment for the retail and hospital pharmacy.)

Bioflavonoids for Formulations

Citrus bioflavonoids now being used as nutritional factors and therapeutic agents are available to leading pharmaceutical manufacturers. Hesperidin, hesperidin methyl chalcone, lemon bioflavonoid complex, and calcium flavonate glycoside are products of *Sunkist Growers*. (See advertisement page 697.)

Clusivol Capsules and Syrup

Two broadly inclusive vitamin-mineral formulations are marketed by *Ayerst Laboratories* as nutritional supplements. A candy-flavored syrup, particularly appealing to children, supplies a daily dosage of vitamins and minerals in 1 to 2 teaspoonfuls for children, with 2 teaspoonfuls twice daily recommended for adults. Capsules, containing higher concentrations of vitamins and minerals with additional amino acids, supply the daily dosage in 1 capsule. Capsules are available in bottles of 100 and 1,000; syrup in 8-oz. and 16-oz. bottles. (Note: the name Clusivol was misspelled Cluvisol in a recent issue of the JOURNAL.)

Ecotrin Tablets

Yellow, SKF-marked and Duentric (enteric) coated tablets containing, in each, 5 gr. of aspirin are marketed by *Smith, Kline and French Laboratories* for use when high doses of aspirin are needed or when gastric discomfort interferes with therapy using uncoated aspirin. Available in bottles of 100 tablets. (See page 751.)

Fentropine Tablets
Fentropine with Butabarbital Tablets

Tablets containing, in each, Profenil (bis-gamma-phenylpropylethylamine) citrate, 60 mg., and homatropine methylbromide, 2.5 mg.; and tablets containing in addition butabarbital sodium, 7.5 mg., are marketed by *Carroll Dunham Smith Pharmacal Co.*, for sedative and antispasmodic effect in management of gastrointestinal spasm, spastic conditions of ureter and bladder, and certain primary dysmenorrheas. Dosage is 1 or 2 tablets 1 to 3 times daily after meals except for spasm of the cardia and ulcers, then after meals. In dysmenorrhea, start Fentropine dosage several days prior to menstruation.

Molofac Capsules

Clear, red capsules containing, in each, 60 mg. of dioctyl sodium sulfosuccinate in polyethylene glycol 400, are marketed by *E. R. Squibb & Sons* for use as a stool softener to foster natural defecation. Dosage in mild constipation is 1 or 2 capsules daily; for children 6 to 12 years, 1 capsule daily. In more severe constipation: adults and older children, initially 2 capsules twice daily for 3 days, then 1 or 2 daily thereafter. The stool-softening effect is usually evident in 1 to 3 days. Available in bottles of 30 and 100. (See page 721.)

Pabirin Buffered Tablets
Pabirin AC Buffered Tablets

Tablets containing in the outer core of each: aluminum hydroxide, PABA, and ascorbic acid; and in the inner core: aspirin or aspirin and hydrocortisone, respectively, are marketed by *Smith-Dorsey* for administration of antirheumatic ingredients in a buffered gastric medium. The tablets differ from the capsule forms in the addition of the antacid. Pabirin buffered tablets are supplied in bottles of 100 and 500; Pabirin AC buffered tablets in bottles of 50 and 250.

Plestran Tablets

Tablets containing, in each: ethinyl estradiol, 0.005 mg.; methyltestosterone, 2.5 mg.; and thyroid globulin (Proloid), 15 mg., are marketed by *Warner-Chilcott Laboratories* as a metabolic regulator to restore muscle tone and a sense of well-being. Effect should be apparent in 7 to 10 days. Supplied in bottles of 100 and 500 tablets. (See page 705.)

Pyribenzamine Injectable Solution, 10-ml. Vial

The injectable solution containing 25 mg. Pyribenzamine (tripelennamine) HCl in each ml. is now supplied by *Ciba Pharmaceutical Products Inc.* in 10-ml. multiple-dose vials (packages of 1, 6, and 50) as well as the 1-ml. ampuls (cartons of 5).

Rutorbin Tablets

Tablets containing, in each: rutin, 20 mg., and ascorbic acid, 100 mg.; or rutin, 60 mg., and ascorbic acid, 300 mg., are marketed by *E. R. Squibb & Sons* for use in ascorbic acid deficiencies and for restoring increased capillary fragility and permeability to normal. Dosage is one 20 mg. + 100 mg. tablet 3 times daily, or, in refractory cases, one 60 mg. + 300 mg. tablet 3 times daily. The 20 mg. + 100 mg. tablets are available in bottles of 100; the 60 mg. + 300 mg. tablets in bottles of 50.

Selsun Cream

A cream containing 0.5% selenium sulfide suspended in a water-miscible base for treatment of seborrheic dermatitis of the auditory canal and other limited areas of the body has been marketed by *Abbott Laboratories* in 1/4-oz. tubes. The cream replaces Selsun jelly.

Serpasil Parenteral Solution, 10-ml. Vial

The parenteral solution containing 2.5 mg. reserpine in each ml. is now supplied by *Ciba Pharmaceutical Products Inc.* in 10-ml. multiple-dose vials (packages of 1, 6, and 50) as well as the 2-ml. ampuls (cartons of 5 and 50). The large size is more convenient for psychiatric emergencies where the i.m. dosage is 5 to 10 mg. of reserpine (2 to 4 ml.).

Sultussin Suspension

A flavored suspension containing in each 5 cc.: 166 mg. each of sulfadiazine, sulfamerazine, and sulfamethazine; pyrilamine maleate, 6.25 mg.; phenyltoloxamine dihydrogen citrate, 6.25 mg.; glyceryl guaiacolate, 50 mg.; and ephedrine sulfate, 5 mg., is marketed by *The Tilden Company* for symptomatic relief of colds, cough and related upper respiratory disorders and as an adjunct to antibiotic therapy. Dosage is 2 teaspoonfuls every 4 hours; children, 1 teaspoonful. Available in 4-oz. and pint bottles.

NEW *Prescription Products*

Trevidal Liquid

A suspension containing aluminum hydroxide, calcium carbonate, magnesium trisilicate, and magnesium carbonate, with vegetable mucin, is marketed by *Organon Inc.* for therapy for peptic ulcer or hyperacidity. It is stated to be compatible with an antispasmodic, sedative, absorbent, antibacterial, costive, carminative, digestant, or laxative. Dosage: hyperacidity, 1 to 4 teaspoonfuls when necessary; peptic ulcer, 2 to 4 teaspoonfuls about one-half hour before symptoms usually appear, or 4 to 5 times daily. Available in 12-oz. bottles. Trevidal tablets also are available.

Urēmi-Lab Test Kit

A pocket-size kit containing reagents and tubes for bedside diagnostic use by the physician to estimate the urea in blood or urine is marketed by *Solway-Annan Co.* The test requires 0.2 cc. of finger-tip blood. Reagents for 6 blood-urea tests are included. Refills are available: #1 for 6 tests, #2 for 70 tests.

Vicalmin Tablets

Tablets with a gastric-resistant coating and containing, in each, the minimum daily requirement of vitamin D, B_1, C, and folic acid; 0.5 MDR of riboflavin, niacinamide, vitamin A, B_{12}, K, and iodine; 0.2 MDR of calcium; with ferrous sulfate 150 mg., pyridoxine 3 mg., and trace metals, are marketed by *Carroll Dunham Smith Pharmacal Co.* as a vitamin-mineral supplement, especially valuable during pregnancy and lactation. Dosage: 1 tablet daily; in iron deficiency anemia, 2 tablets daily.

VETERINARY PRODUCTS

Piperex Veterinary Powder

Agranular powder of piperazine citrate tetrahydrate is marketed by *E. R. Squibb & Sons* as a 1-day treatment for round worms, in poultry, horses, dogs, cats, pigs, and other domesticated animals. It is supplied in bottles of 280 Gm., sufficient to treat 1,000 birds or 1,700 pounds of pigs, calves, or horses by mixing with feed or drink.

Synovex Pellets (Vet.)

A pellet implant containing progesterone and estradiol is marketed by *E. R. Squibb & Sons* for weight gain stimulation in cattle. A cartridge containing 6 pellets is loaded into an implanting device which is then inserted into a small incision between the skin and cartilage of the animal's ear. One implantation is effective for about 150 days. Packaged in 10-dose and 100-dose cartons. The implanter and incision knife are packaged and sold separately.

Teatube–Corbiot Ointment (Vet.)

An ointment containing in each 10 Gm.: hydrocortisone acetate, 20 mg.; neomycin sulfate, 205 mg.; procaine penicillin G, 250,000 u.; polymyxin B sulfate, 50,000 u.; and chlorobutanol, 50 mg., in a milk-miscible base, is marketed by *The Upjohn Company* for the treatment of bovine mastitis by udder instillation. Available in 10-Gm. tubes.

Annual Symposium on Antibiotics

Between the first and this, the fourth, Annual Symposium on Antibiotics, 43 new antibiotics have been announced in addition to the many others since the discovery of penicillin in 1928 and its first clinical use in 1940. Dr. F. Marti-Ibanez noted this and then predicted that in the next 10 years, relaxing or tranquilizing drugs will change the mental disease picture as much as antibiotics have changed the germ disease status in the past 15 years.

The problem of resistant bacteria was a recurrent theme in many of the symposium reports. To counteract this bacterial tendency, new antibiotics such as Vancomycin (Lilly), Ristocetin (Abbott), Nucleocidin (Lederle), and others are being readied for widespread clinical applications. Long-range possibilities are cited for Alazopeptin (Lederle), an antibiotic that has shown promise in tests against experimental cancer in mice.

But by far the most potent weapons against mutating and emerging bacterial strains, in this era that was to see the triumph of specific agents for specific diseases, are the synergistic and range-extending combinations of antibiotics. A promising new combination of antibiotics is Sigmamycin (Pfizer), already marketed as the symposium developed. Reports cited studies with combinations of oleandomycin with tetracycline and derivatives, soframycin with nystatin, novobiocin with spiramycin, an oleandomycin salt of penicillin G, a combination of tetracycline with nystatin and novobiocin, and a combination of prednisolone with streptomycin and isoniazid. High hopes are held that these and other combinations will be more successful where narrow-range and broad-spectrum antibiotics were only moderately effective. Dr. Henry Welch, antibiotics chief of FDA and chairman of the symposium held at Washington, D.C., October 17–19, stated that the development of new products and the increasing knowledge of antibiotic behavior might herald a new era of well-being.

ASSISTANT PHARMACIST WANTED

An interesting opportunity in pleasant surroundings is open in Central Pennsylvania to a male or female assistant pharmacist. Applications should be sent to:

Mr. Robert C. Herriman, Chief Pharmacist
The Altoona Hospital, Altoona, Pennsylvania

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Seromycin é INH Pulvules, Lilly, Oct., 685
Seromycin Pulvules, Lilly, Oct., 685
Serpasil Elixir (new strength), Ciba, Oct., 688; —Tablets, 2 mg. and 4 mg , Oct., 688
Serpasil Parenteral Solution, 10-ml. vial, Ciba, Nov., 761
Serpatilin Tablets, Ciba, June, 418
Serpedon Elixir, Walker, Jan., 60
Sigmamycin Capsules, Pfizer, Nov., 760
Silconex Ointment, Hygiene Research, Sept., 613
Silmidate-M with Codeine Tablets, Haskell, Aug., 548
Sippyplex Powder, Purdue Frederick, April, 258
Snake Bite Kit, McDonald, Feb., 124
Solvilith Tablets, Miller, July, 485
Somatovite Tablets, Purdue Frederick, May, 356
Sominat Tablets, National Drug, Nov., 760
Sparine Hydrochloride Tablets; —Injection, Wyeth, May 356
Steclin Syrup, Squibb, July, 485
Sterane Tablets 1 mg., Pfizer, Mar., 196
Sterisil Vaginal Gel, Warner-Chilcott, June, 419
Stilphostrol Solution, Ames, Feb., 124
Stokes Tablet Hardness Tester, Stokes, Mar., 196
Sulfid B-A Tablets, Columbus, Aug., 548
Sulfid Pediatric Suspension; —Tablets, Columbus, Aug., 548

Sultriad Tablets, Taylor, Oct., 688
Sultussin Suspension, Tilden, Nov., 761
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Surital Sodium 10 Gm. Steri-Vials, Parke Davis, Oct., 688
Synovex Pellets (Vet.), Squibb, Nov., 762

Tarcortin Cream, Reed & Carnrick, Feb., 124; new size, Mar., 196
Tashan Cream, Hoffmann-LaRoche, July, 485
Teatube-Corbiot Ointment (Vet.), Upjohn, Nov., 762
Tempogen Tablets, Merck S & D, Oct., 688
Teolaxin Capsules, Maney, Mar., 196
Terrabon Homogenized Mixture, Pfizer, June, 419
Tes-Tape for Urine Sugar Test, Lilly, April, 260
Testaldiol Buccal Tablets, Meyer, Aug., 548
Testavol-S Capsules, Testagar, July, 485
Tetrabon Homogenized Mixture, Pfizer, Oct., 688
Tetrabon SF Homogenized Mixture, Pfizer, Oct., 688
Thalajen Tablets; —Cream, Jenkins, Mar., 196
Theobarb-R Tablets, VanPelt & Brown, Aug., 548
Theracombin Syrup, Bryant, Mar., 196
Thiamine Mononitrate, Free-Flowing, Merck S & D, July, 485
Thiosulfil-A Tablets, Ayerst, Sept., 613
Thiosulfil Solution, Ophthalmic and Nasal, Ayerst, Jan., 60
Thora-Dex Tablets No. 1 and No. 2, SKF, May, 356
Thorazine Suppositories 25 and 100 mg., SKF, Mar., 194
Titralac-SP, Schenley, July, 485
T-Mist Nasal Spray, Norwich, Sept., 613
Tolagesic ĉ Codeine Tablets, Miller, July, 485
Toloxidyne Tablets. Harvey, Jan., 60
Topicort Spray, Roussel, April, 260
Topitracin, Reed & Carnrick, June, 420
Trevidal Liquid, Organon, Nov., 762
Tridal Tablets, Lakeside, Feb., 124
Triethylene Melamine, TEM, Tablets, Lederle, Oct., 688
Trimester Capsules, Haug, Aug., 548
Trinalin Supprettes, Webster, Feb., 124
Tri-Synar Plus Tablets, Armour, Aug., 548
Tritheon Tablets, Ortho, June, 419
Trobex Injection, Testagar, June, 419
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Unette Dispenser, Unette, Feb., 124
Unicap Therapeutic Tablets, Upjohn, Aug., 548
UR-AT Tablets, Maney, Oct., 688
Urēmi-Lab Test Kit, Solway-Annan, Nov., 762
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V-Cillin Pediatric for Suspension, Lilly, Mar., 194
V-Cillin Pulvules 250 mg., Lilly, Mar., 196
V-Cillin-Sulfa Tablets, Lilly, June, 419
Velmol Capsules, Patch, Sept., 613
Vibruden Injection, Phila. Ampoule Labs., Mar., 195
Vicalmin Tablets, Carroll Dunham Smith Pharmacal, Nov., 762
Vi-Mix Drops, Lilly, Mar., 195
Vioform-Hydrocortisone Cream, Ciba, Oct., 688
Vio-Lax Tablets, Rowell, Jan., 60
Vio-Natal Tablets, Rowell, April, 260
Vi-Syneral Vitamin Drops Fortified, U.S. Vitamin, April, 260
Vitamin B_{12} Injection, Crystalline, Barnes-Hind, Oct., 686
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Zestamin Captabs, Bryant, Aug., 548
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Aspirin (Aluminum Salt) Dulcet Tablets, April, 259
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Compocillin-V Oral Suspension, Oct., 685
Gallimycin Poultry Formula, Aug., 548
Nembudeine Filmtab without Codeine, June, 420
Pediatric Abbo-Liter Containers 150 cc., April, 260
Radio-Pharmaceuticals, Sept., 613
Selsun Cream, Nov., 761

Alcon Laboratories, Inc.
Isopto Carpine Solution 0.25% and 3%, Aug., 547
Isopto Cetamide Solution—new size, Aug., 547

American Cyanamid Company
Aurovim Poultry Powder (Vet.), Aug., 548
Aurovim Swine Powder (Vet.), Sept., 613

Ames Company, Inc.
Clinistix for Urine Sugar Test, Mar., 195
Nostyn Tablets, Oct., 685
Stilphostrol Solution, Feb., 124

Armour Laboratories
Chymar Injection, Mar., 193
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Arnar-Stone Laboratories, Inc.
Americaine Aerosol—new size, April, 259
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B. F. Ascher & Company, Inc.
Athemol Tablets, Nov., 760

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Clusivol Capsules: —Syrup, Nov.., 761
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Mediatric Tablets, July, 484
Mysoline Suspension, April, 259
Thiosulfil-A Tablets, Sept., 613
Thiosulfil Solution, Ophthalmic and Nasal, Jan., 60

Baltimore Biological Laboratory
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Barnes-Hind Laboratories
Lemron Syrup; —Tablets, Nov. 761
Piperone Tablets, Sept., 613
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Barrows Chemical Company, Inc.
Mucogel and Mucogel-B Tablets, Mar., 194

Bilhuber-Knoll Corp.
Paracodin Bitartrate Ampuls; —Tablets, Sept., 612

Boyle & Company
Citra Capsules; —Cough Syrup, July, 483

Braun Laboratories
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Bristol Laboratories, Inc.
Bristamin APC—nonlegend, Feb., 124
Neuro-Centrine Tablets, Sept., 611
Polycycline Aqueous with Triple Sulfonamides, Mar., 196

Bruce Parenterals
Monosodium Glutamate Injection, Oct., 687

Bryant Pharmaceutical Corp.
Biocol Cold Capsules, May, 356
Cortomycin Ointment, Aug., 546
Hydrocortisone Acetate Ointment, June, 420
Neomycin Sulfate Ointment, Jan., 59
Protosil Ointment, Aug., 547
Reserpine Elixir, Jan., 60
Theracombin Syrup, Mar., 196
Vanulets Captabs, Aug., 548
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Burroughs Bros. Mfg. Co.
Buroplex Liquid, Oct., 686
Buroplex Plus Capsules, Oct., 686
Medrox Tablets, Oct., 687

Burroughs Wellcome & Company (USA), Inc.
Cortisporin Ointment—new size, Mar., 195
Cortisporin Otic Drops, July, 482
Kemadrin Tablets, Feb., 123
Lanoxin (Digoxin) Products, Sept. 612
Maredox Tablets, Sept., 611
Neosporin Ophthalmic Solution, Jan., 58
Perazil Tablets 25 mg., Jan., 59

Central Pharmacal Company
Neocydex Tablets, June, 420
Uritral Capsules, June, 419

Ciba Pharmaceutical Products, Inc.
Ecolid Chloride Tablets, June, 418
Metandren Tablets 25 mg., Oct., 687
Pyribenzamine HCl Anesthetic Jelly; —Anesthetic Solution, Oct., 688
Pyribenzamine Injectable Solution, 10-ml. vial, Nov., 761
Ritalin Tablets, June, 418
Serpasil Elixir (new strength), Oct., 688; —Tablets, 2 mg. and 4 mg., Oct., 688
Serpasil Parenteral Solution, 10-ml. vial, Nov., 761
Serpatilin Tablets, June, 418
Vioform-Hydrocortisone Cream, Oct., 688

Columbus Pharmacal Company
Bubartal Sodium Injection, Aug., 545
Gymens Tablets, Aug., 545
Hycodrox Tablets, Aug., 547
Sulfid B-A Tablets, Aug., 548
Sulfid Pediatric Suspension; —Tablets, Aug., 548

Commerce Drug Co., Inc.
Gelcomul Suspension, July, 484

Cutter Laboratories
Polysal Elixir, Feb., 123

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Desitin Chemical Company
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Donley-Evans & Company
Lipo-Diazine Suspension, Jan., 59
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Eaton Laboratories, Inc.
Furacin Soluble Dressing—new package, Aug., 545

Paul B. Elder Company
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Oxsoralen Capsules for Sun Protection and Tanning, Oct., 688

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Cardiac Emergency Kit., July, 484

Fenwal Laboratories, Inc.
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Field Laboratories, Inc.
Kradon Tablets, June, 420
Pryme Capsules, July, 485

C. B. Fleet Co., Inc.
Fleet Enema, Aug., 547

The Gebauer Chemical Company
Fluoro-Ethyl Aerosol, Aug., 547

Geigy Company, Inc.
Preludin Tablets, Sept., 612

Otis E. Glidden & Co., Inc.
BSP Liquid, Sept., 612
Zylax Tablets, Aug., 548
Gray Pharmaceutical Co., Inc.
Diovac Syrup; —Pediatric Syrup, July, 484
L-Glutavite (new package), Oct., 686
Grove Laboratories, Inc.
Citroid Compound Capsules, Mar., 195
Haack Laboratories, Inc.
Carbak Tablets, Sept., 611
The G. F. Harvey Company
A-C-K Buffered Tablets, Feb., 122
Angitet Tablets, Sept., 612
Azonamide Tablets, Sept., 612
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Nartate Solution; —Tablets, Jan., 59
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Belbarb B Tablets, Feb., 124
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Hoffmann-LaRoche Inc.
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Tashan Cream, July, 485
Hygiene Research, Inc.
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Isodine Pharmacal Corporation
Isodine Solution, Aug., 547
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Thalajen Tablets; —Cream, Mar., 196
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Lakeside Laboratories, Inc.
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Metamine Sustained Tablets 10 mg., Sept., 612
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Compren Pulvules, May, 356
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Sandril Solution; —Tablets 5 mg., Feb., 123
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Seromycin Pulvules, Oct., 685
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Lincoln Laboratories, Inc.
Hexadenol—nonlegend, Feb., 124
Alu-Scop Capsules; —Suspension, May, 355
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Cothamid Suspension, May, 356
Doxinate Capsules 20 mg., —Solution, Feb., 123; —Capsules 60 mg., June, 419
Lloyd, Dabney & Westerfield, Inc.
Mybasal Tablets, June, 420
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Raurine Tablets 0.5 and 1 mg., July, 485
Magnus, Mabee & Reynard, Inc.
Magna Imitation Vanilla Flavor, Oct., 687
Paul Maney Laboratories
Andira Tablets, Aug., 546
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B-Telve Tablets, Mar., 193
Cal-O-Nol w/Antihistamine, June, 419
D-Ate Capsules, Mar., 195
Kalnatal Tablets, Aug., 547
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The S. E. Massengill Company
Homagenets—Pediatric, Prenatal, and Therapeutic (Vitamins), Jan., 58
Renir Tablets, Aug., 547; Sept., 613
B. F. McDonald Company
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McNeil Laboratories, Inc.
Butiserpine Elixir, Aug., 546
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Colace Capsules, May, 356; new size, Sept., 612; — Solution, May 356
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Mephyton Tablets, Aug., 547
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Redifact Tablets, Feb., 123
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Bentyl Hydrochloride Injection (new dosage size), July, 483; —Tablets, Oct., 686
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Almethine Duracap Capsules, Jan., 58
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E. S. Miller Laboratories, Inc.
Anatoid Suppositories, Jan., 58
Pradase Tablets, July, 485
Proscomide Capsules, Sept., 613
Solvilith Tablets, July, 485
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Hesper-C Liquid, May, 356
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Nepera Chemical Company, Inc.
Biomydrin Otic (new formula) Sept., 612
Nopco Chemical Company
Nop-Dry Vitamin A, April, 260
Norwich Pharmacal Company
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Organon, Inc.
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Ortho Pharmaceutical Corp.
Tritheon Tablets, June, 419
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Palo Laboratory Supplies, Inc.
Guth Handi-Mat for Bench Tops, Mar., 195
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The E. L. Patch Company
Velmol Capsules, Sept., 613
Pfizer Laboratories, Chas. Pfizer & Company, Inc.
Bonadettes Tablets, Aug., 546
Matromycin Capsules, Nov., 760
Sigmamycin Capsules, Nov., 760
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Terrabon Homogenized Mixture, June, 419
Tetrabon Homogenized Mixture, Oct., 688
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Philadelphia Ampoule Laboratories
Appetum Chewing Gum Tablets, Sept., 612
Hydrocortisone Acetate Aqueous Suspension, June, 420
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Vibruden Injection, Mar., 195
Pitman-Moore Company
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I. E. Princer Pharmaceuticals
Aci-Derma Lotion, July, 483
Purdue Frederick Company
Sippyplex Powder, April, 258
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Reed & Carnrick
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Tarcortin Cream, Feb., 124; new size, Mar., 196
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Riker Laboratories, Inc.
Medihaler-Epi Oral Inhalation, April, 259
Medihaler-Iso Oral Inhalation, April, 259
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A. H. Robins Company, Inc.
Donnagesic Extentabs No. 1 and No. 2, Aug., 546
Robalate Liquid, Sept., 613
J. B. Roerig & Company, Division, Chas. Pfizer & Co., Inc.
Atarax Tablets, July, 482
Roussel Corporation
Topicort Spray, April, 260
Rowell Laboratories, Inc.
Estra-Plex Cream, Feb., 123
Gyna-Plex Vaginal Cream, Oct., 687
Ro-Bile Tablets, Jan., 60
Vio-Lax Tablets, Jan., 60
Vio-Natal Tablets, April, 260
Rystan Company
Panafil Ointment, Sept., 613
Sandoz Pharmaceuticals
Sandostene Tablets, July, 483
Sandostene + Calcium Injection, July, 483
Schenley Laboratories, Inc.
Rutaminal-RQ Tablets, Feb., 123
Titralac-SP, July, 485
Schering Corporation
Meticortelone Capsules, Jan., 59
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Meti-Derm Cream, June, 418
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Schieffelin and Company
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Rolicton Tablets, Nov., 760
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Sherman Laboratories
Persistin Tablets, July, 484
Carroll Dunham Smith Pharmacal Co.
Fentropine Tablets, Nov., 761
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Martin H. Smith Company
Ergoval Capsules, Aug., 545
Smith-Dorsey Division, Wander Company
Pabirin AC Buffered Tablets, Nov., 761
Pabirin AC Capsules, July, 484
Pabirin Buffered Tablets, Nov., 761
Smith, Kline & French Laboratories, Inc.
Compazine Tablets, SKF, Nov., 760
Cytomel Tablets, July, 482
Ecotrin Tablets, Nov., 761
Thora-Dex Tablets No. 1 and No. 2, May, 356
Thorazine Suppositories 25 and 100 mg., Mar., 194
Solway-Annan Co.
Uremi-Lab Test Kit., Nov., 762
E. R. Squibb & Sons, Div., Olin Mathieson Chemical Corp.
Deladumone Injection, Feb., 122
Delalutin Injection, July, 482
Florinef-S Ophthalmic Ointment; —Suspension, July, 484
Molofac Capsules, Nov., 761
Mysteclin Suspension, Oct., 687
Neomycin-Mycostatin Tablets, Sept., 611
Piperex Veterinary Powder, Nov., 762
Renografin Injection (Diagnostic), Jan., 60
Rutorbin Tablets, Nov., 761
Steclin Syrup, July, 485
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F. J. Stokes Machine Co.
Stokes Tablet Hardness Tester, Mar., 196
R. J. Strasenburgh Co.
Biphetamine Resin Capsules, Feb., 122
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Sutliff & Case Co., Inc.
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Ascorbacent Lozenges, Oct., 686
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Heatex Tablets, Oct., 687
Mainvite and Mainvite Jr. Capsules, Oct., 687
Merlor Ointment, Oct., 687
Reserlor Tablets, Oct., 688
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Testagar & Company, Inc.
Ascorbacaine Capsules, May, 355
Bismuth Subsalicylate Injection, May, 356
Dipyrone Injection, May, 355
E-Ferol Succinate Capsules 200 I.U., June, 418
Hexatina Tablets, June, 420
Testavol-S Capsules, July, 485
Trobex Injection, June, 419
Texas Pharmacal Company
Dispertar Ointment, Sept., 612
The Tilden Company
Sultussin Suspension, Nov., 761
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Unette Dispenser, Feb., 124
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Ascorutin-Bio Tablets, U.S. Standard, July, 483
Pyrazoline-S, Nov., 760
U.S. Vitamin Corporation
Aquasol A Cream with Panthoderm, Mar., 195
C.V.P. Capsules and Syrup—nonlegend, U.S. Vitamin, Jan., 58
Duo-C.V.P. Capsules, Aug., 546
Vi-Syneral Vitamin Drops Fortified, April, 260
The Upjohn Company
Albamycin Capsules, Aug., 545
Aqua-B with Ascorbic Acid Injection, April, 258
Cer-O-Streps—One-half, Sterile for Injection; —One, Sterile, for Injection, Oct., 685
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Depo-ACTH Sterile Solution, 80 U., Oct., 686
Gelfoam Powder, Sterile, June, 420
Gerizyme, Mar., 193
Neo-Delta-Cortef Eye-Ear Drops 0.25%, June, 418; —Eye-Ear Ointment, June, 420
Neo-Delta-Cortef Nasal Spray, Aug., 547
Neo-Delta-Cortef Ointment, Mar., 194; new tube, Oct., 687; —Drops., April, 260
Pamine Sterile Solution, Jan., 59
Parvex Powder (Vet.), Mar., 196
Reserpoid Tablets 4 mg., July, 485
Teatube-Corbiot Ointment (Vet.), Nov., 762
Unicap Therapeutic Tablets, Aug., 548
Vale Chemical Company, Inc.
Binitrin Tablets, Aug., 546
VanPelt & Brown, Inc.
Raudonna Tablets, April, 258
Theobarb-R Tablets, Aug., 548
Vick Chemical Company
Medi-Mist Nasal Spray, Jan., 59
The Vitarine Co., Inc.
Morphine and Codeine Injections, June, 420
Walker Laboratories, Inc.
Bacimycin with Hydrocortisone Ointment, Aug., 546
Cortispray Solution, Aug., 546
Geralin Capsules, July, 484
Pincets Lozenges, April, 260
Serpedon Elixir, Jan., 60
Wampole Laboratories
Artamide-HC Capsules, Oct., 686
Warner-Chilcott Laboratories
Plestra Tablets, Nov., 761
Releasin Parenteral, Sept., 612
Sterisil Vaginal Gel, June, 419
The Warren-Teed Products Co.
Axofor Capsules, Aug., 545
Cal-O-B Tablets, June, 419
Modane Tablets, Mar., 194
Modane Mild Tablets, Warren-Teed, Aug., 547
Myoflex Creme, June, 420
The Wm. A. Webster Company
Trinalis Supprettes, Feb., 124
West-ward, Inc.
Pre-Natal Capsules (new formula), June, 420
Rauwolfia Serpentina with Veratrum Viride Tablets, Jan., 60
Reserpine Alkaloid Tablets, Mar., 196
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Vitamin Candies, Sept., 613
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Fostex Cream; —Cake, July, 484
White Laboratories, Inc.
Cerofort Elixir; —Tablets, Feb., 122
Mol-Iron with Vitamin C Tablets, Oct., 687
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A.P.C. with Demerol Tablets, May, 355
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Otamylon with Hydrocortisone Ear Drops, Oct., 687
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In the December Issue

1957 Iodine Research Award Nominations Requested Prior to January 1, 1957

Nominations are now being received by the AMERICAN PHARMACEUTICAL ASSOCIATION for the 1957 Chilean Iodine Educational Bureau, Inc., Award recognizing outstanding research in the chemistry and pharmacy of iodine and its compounds as applied in pharmacy or medicine.

The award consists of $1,000 and a diploma setting forth the reasons for selection of the recipient. It may be presented each year at the annual meeting of the ASSOCIATION.

Any member of the ASSOCIATION may propose a nominee by submitting eight copies of each of the publications to be considered in the competition, a biographical sketch of the nominee including date of birth, and a list of his publications. Eight copies of the nomination must be submitted to Robert P. Fischelis, Secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION, 2215 Constitution Ave., N. W., Washington 7, D. C. To be eligible for the 1957 Award, *nominations must be received on or before January 1, 1957.*

A nominee must be a resident of the United States or Canada He must have accomplished outstanding research in the chemistry or pharmacy of iodine and its compounds as applied in pharmacy or medicine.

During the period covered by the nomination the nominee shall have been actively engaged in, shall have completed, or shall have published a report upon the line of investigation for which the award is made. During the period of two years prior to the date of nomination, the nominee shall not have been engaged in research under the sponsorship of the Chilean Iodine Educational Bureau, Inc.

The recipient will be selected by an award committee which is appointed by the chairman of the ASSOCIATION's Council. The present committee includes Justin L. Powers, chairman; F. F. Blicke, Paul Block, E. A. Brecht, Stanley G. Mittelstaedt, Lloyd M. Parks, and Linwood F. Tice.

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